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NATIONAL DAM SAFETY PROGRAM, JOHN D. ROCKEFELLER JR. DAM (INVEN--ETC(U)

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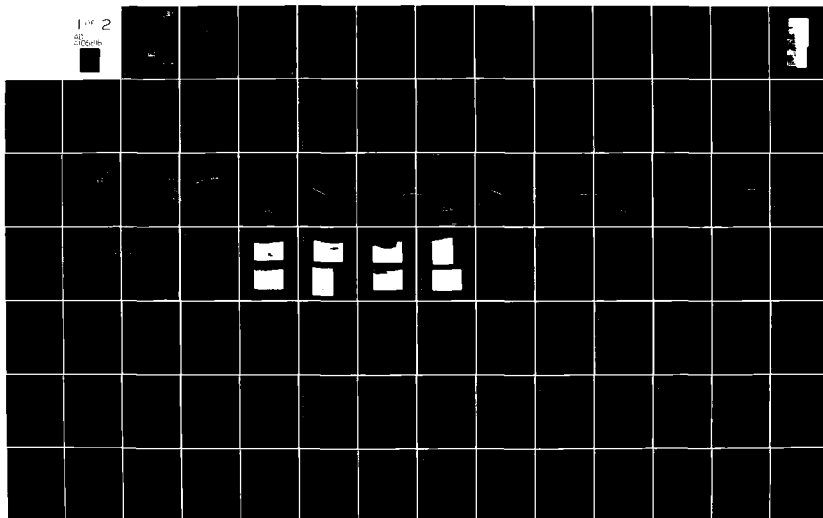
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LOWER HUDSON RIVER BASIN

LEVEL II

JOHN D. ROCKEFELLER JR. DAM

WESTCHESTER COUNTY, NEW YORK  
INVENTORY NO. N.Y. 665

PHASE I INSPECTION REPORT  
NATIONAL DAM SAFETY PROGRAM

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15. ABSTRACT (Continue on reverse side if necessary and identify by block number) This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization. The examination of documents and the visual inspection of the John D. Rockefeller Jr. Dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which require further investigation and remedial action. → (over)		15. CLASSIFICATION/DOWNGRADING CODE

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Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that the dam would not be overtopped for the PMF. The spillway capacity is therefore adequate although the type and configuration are not acceptable.

It is therefore recommended that within 3 months of notification to the owner, an investigation be conducted to determine the exact dimensions, capacity of and to appraise the stability of the existing spillway. Following this study, an acceptable engineering solution should be developed to correct the spillway safety problem.

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**LOWER HUDSON RIVER BASIN**

**JOHN D. ROCKEFELLER JR. DAM**

**WESTCHESTER COUNTY, NEW YORK  
INVENTORY NO. N.Y. 665**

**PHASE I INSPECTION REPORT  
NATIONAL DAM SAFETY PROGRAM**



**NEW YORK DISTRICT CORPS OF ENGINEERS**

**JULY 1981**

## PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D. C., 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigations, and analyses involving topographic mapping, sub-surface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

PHASE I INSPECTION REPORT  
NATIONAL DAM SAFETY PROGRAM  
JOHN D. ROCKEFELLER JR. DAM  
I.D. NO. N.Y. 665  
D.E.C. NO. 922  
LOWER HUDSON RIVER BASIN  
WESTCHESTER COUNTY, N.Y.

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PHASE I INSPECTION REPORT  
NATIONAL DAM SAFETY PROGRAM

NAME OF DAM	John D. Rockefeller Jr. Dam, NY 665
STATE LOCATED	New York
COUNTY LOCATED	Westchester
STREAM	Pocantico River
BASIN	Lower Hudson
DATE OF INSPECTION	April 2, 1981

ASSESSMENT

The examination of documents and the visual inspection of John D. Rockefeller Jr. Dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which require further investigation and remedial action.

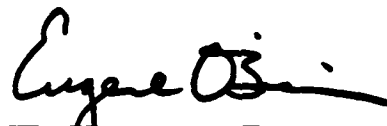
The earth embankment is considered to be stable under present conditions; however, the configuration and type of the present spillway are considered unacceptable. This presents a potentially hazardous condition under higher than observed flood discharge levels, when water flowing over the unlined channel, which is cut in overburden, at high rates could erode the adjacent earth embankment resulting in the breaching of the dam.

Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that the dam would not be overtopped for the PMF. The spillway capacity is therefore adequate although the type and configuration are not acceptable.

It is therefore recommended that within 3 months of notification to the owner, an investigation be conducted to determine the exact dimensions, capacity of and to appraise the stability of the existing spillway. Following this study, an acceptable engineering solution should be developed to correct the spillway safety problem.

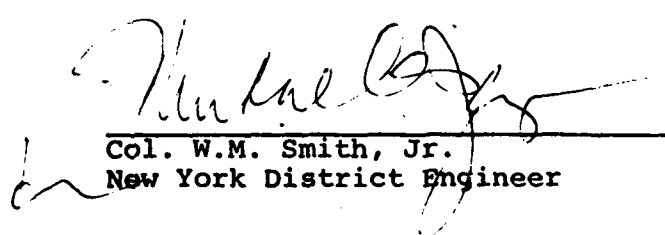
In addition, the dam and its appurtenant facilities have a number of problem areas, which if left uncorrected, have the potential for the development of hazardous conditions and must be corrected within one year. These areas are:

1. Local erosion and sloughing on the upstream face should be corrected by regrading the slope and protecting with riprap.
2. Repair operating mechanism for the low level outlets and clear stone and debris from downstream outlet channel. Provide access to outlet works control tower.
3. Remove vegetation and trees as detailed in Section 3.2 and provide a program of periodic mowing and cutting.
4. A program of periodic inspection and maintenance of the dam and appurtenances should be provided including yearly operation of the outlet system and lubrication of its moving parts. This information should be documented for future reference. The emergency action plan described in section 7.1d should be developed and updated periodically during the life of the structure.



Eugene O'Brien, P.E.  
New York No. 29823

Approved by:



Col. W.M. Smith, Jr.  
New York District Engineer

Date:

10 5 AUG 1981



1. OVERVIEW OF DAM

PHASE I INSPECTION REPORT  
NATIONAL DAM SAFETY PROGRAM  
JOHN D. ROCKEFELLER JR. DAM  
I.D. NO. N.Y. 665  
D.E.C. NO. 922  
LOWER HUDSON RIVER BASIN  
WESTCHESTER COUNTY, N.Y.

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL

a. Authority

The Phase I inspection reported herein was authorized by the Department of the Army, New York District, Corps of Engineers by Contract No. DACW 51-81-C-0008 dated 14 December 1980 in fulfillment of the requirements of the National Dam Inspection Act, Public Law 92-367, 8 August 1972.

b. Purpose of Inspection

The inspection was conducted to evaluate the existing conditions of the dam, to identify deficiencies and hazardous conditions, to determine if these deficiencies constitute hazards to life and property, and to recommend remedial measures where required.

1.2 DESCRIPTION OF THE PROJECT

a. Description of Dam and Appurtenant Structures

The John D. Rockefeller Jr. Dam is an approximately 325 foot long earth embankment with a concrete core wall. The crest of the dam is 21 feet wide and the dam has a maximum height of 39 feet, (34 feet without core wall extension). The upstream face of the dam has a slope of 1V to 3H below El 302 and 1V to 2H above this elevation to the top of the dam at El 305. The downstream face of the dam has a uniform slope of 1V to 2H.

An intake tower is located 51.5 feet upstream of the centerline of the dam near the dam's center. The tower has two intakes, a 12-inch sluice gate with an invert elevation of 289.5 and a 24-inch sluice gate fed by a 24-inch I.D. cast iron intake pipe with an invert elevation of 276.0. Outlet from the tower is provided through a 24-inch gate valve which discharges into a 24-inch cast iron pipe which exists at the toe of the dam with an invert elevation of 276.0.

An unlined ditch of irregular shape located near the right abutment with a low point at El 299 serves as an uncontrolled overflow spillway.

b. Location

John D. Rockefeller Jr. Dam is located on an unnamed tributary of the Pocantico River just north of the Village of Pocantico Hills, New York. The dam is located on the John D. Rockefeller Jr. estate about 1/4 mile south of Route 117.

c. Size Classification

The dam is 34 feet high and has a reservoir with a maximum storage capacity of 289 acre-feet and therefore is classified as a small dam.

d. Hazard Classification

The dam is in the "high" hazard potential category because of its close downstream proximity to a number of residences and N.Y. State Route 117.

e. Ownership

John D. Rockefeller Jr. Dam is owned by the Estate of John D. Rockefeller Jr. and is administered and maintained by the Greenrock Corporation. The person to contact is Mr. John Sundholm, V. P. of Operations, Greenrock Corporation, Pocantico Hills, New York, 10591, Telephone No. (914) 631-4560.

f. Purpose of Dam

The dam impounds water for recreational use.

g. Design and Construction History

The dam was designed and the construction supervised by Walter Kidde Construction Company between 1931 and 1933. Construction was done by employees of the owner.

1.3 PERTINENT DATA

a. <u>Drainage Area</u> , Square Miles	0.16
b. <u>Discharge at Damsite</u> , cfs	
Uncontrolled Overflow Spillway	1570.0
24-Inch Low Level Outlet	150.0
Total Discharge at Maximum Pool	1720.0
c. <u>Elevation</u> , Feet Above MSL, USGS Datum	
Maximum Pool, Top of Dam	305.5
Spillway Crest	299.0
Invert Low Level Intake 1	289.5
Invert Low Level Intake 2	276.0
Invert Low Level Outlet	275.0
d. <u>Reservoir</u>	
Length of Normal Pool(miles)	0.4
Surface Area of Maximum Pool(acres)	19.3
Surface Area of Normal Pool(acres)	18.4

- e. Storage, Acre-Feet  
 Reservoir at Spillway Crest 173  
 Reservoir at Maximum Pool 289
- f. Dam  
Type Earth Embankment with Concrete Core  
 Length (Feet) 325  
 Upstream Slope  
   Surface: Riprap  
   Inclination: Above El 302 ft: 1V:2H  
               Below El 302 ft: 1V:3H  
 Downstream Slope 1V:2H  
 Crest Elevation (MSL) 305.5 feet  
 Crest Width 21.0 feet  
 Grout Curtain None  
 Cutoff Concrte Core Wall to Rock
- g. Spillway  
Type Uncontrolled Ditch Cut into Dam/Overburden  
 Size Irregular; approximately 3 feet deep, 10 feet wide  
 Crest Elevation (Feet) 299  
 Upstream Channel Varies  
 Downstream Channel Unlined Ditch, about 3 feet deep
- h. Reservoir Drain  
 Intake tower with two inlets (12-inch at El 289.5 feet and 24-inch at El 276 feet); one outlet (24-inch I.D. cast iron pipe at El 275.5 feet) controlled by gate valve.



## SECTION 2 - ENGINEERING DATA

### 2.1 GEOLOGY

The records of the owner contain no data on site geology. However, there is data available in the literature on the general geology of the area. The John D. Rockefeller Jr. Dam is located in the Manhattan Prong of the New England Upland physiographic province. This area is characterized by complex mountains and hills of igneous and highly metamorphosed rock. The rock underlying the site of the dam is the Fordham Gneiss.

### 2.2 SUBSURFACE INVESTIGATIONS

Subsurface investigations were carried out by test-pitting prior to the construction of the dam. These are summarized on a Longitudinal Section. Eleven test pits were done ranging from 5 to 12 feet in depth. The test pits identified the overburden in the area as topsoil (loam) overlying hardpan and clay, and clay with gravel or clay with sand.

### 2.3 DESIGN RECORDS

Design records consist of four contract drawings, one as-built drawing and construction specifications. Copies of these are included in Appendices A and F.

### 2.4 CONSTRUCTION RECORDS

There are no construction records available for the project. The contractor was Walter Kidde Constructors, Inc.

### 2.5 OPERATION RECORDS

There is no regular operation of the reservoir and there are no operation or maintenance manuals for the dam.

### 2.6 EVALUATION OF DATA

The information obtained from the drawings, records and personal interviews is considered adequate for a Phase I evaluation.

## SECTION 3 - VISUAL INSPECTION

### 3.1 FINDINGS

#### a. General

The visual inspection of the John D. Rockefeller Jr. Dam was made on 2 April 1981. The weather was overcast and the temperature was in the fifties. At the time of the inspection, the lake level was at about El 300 with approximately one foot or water flowing through the spillway.

#### b. Dam

The horizontal and vertical alignment of the crest of the dam show no signs of stress, deformation or cracking. The upstream and downstream slopes are covered by moderate amounts of brush with the downstream face additionally covered by substantial amounts of tree growth. There is no evidence of sliding, sloughing or other distress on the downstream slope and there is no seepage evident.

The upstream slope of the dam shows a continuous line of local sloughing near the current water level. This appears to be the result of a lack of or damage to riprap at this elevation.

There is no emergency action plan for the project.

#### c. Spillway

The spillway which is located near the contact of the dam with the right abutment is an uncontrolled open ditch with no guide walls, control structure or well defined channel. Water as it flows over the spillway is allowed to find its own channel until after it crosses the dam/abutment contact where it is carried by a small unpaved channel. The drawings (see Appendix A) confirm the field observations, that is, that the spillway is cut into overburden.

#### d. Outlet and Pipes

The inlets to the intake tower could not be observed at the time of the inspection since they were below the water level. The top portions of the rods which control the gates and valves were visible from the tower; it could be seen that their diameters were reduced by rusting and therefore they would probably be inoperable. The owner's representative has no recollection of these being operated. The wheels and stems required for the operation of the gates were not at the site. The access bridge to the tower is missing resulting in a boat being the only access to the tower.

The discharge end of the reservoir outlet pipe was buried under a pile of rocks about 50 feet downstream of the toe of the dam and was therefore unobservable. There was a small amount of rusty water seeping from under the rocks.

e. Abutments

The abutment/dam contacts and abutments are in good condition; there does not appear to be any unstable conditions on the abutments.

f. Reservoir Area

The reservoir is located within a park-like area surrounded by gently sloping open fields and more heavily wooded steeper sloping areas. There are neither slides, rock falls or sloughing around the reservoir. There is no visible sedimentation accumulation in the reservoir.

3.2 EVALUATION OF OBSERVATIONS

Although deficiencies were observed, there is no indication that the dam is in imminent danger. Most of the deficiencies observed in the previous paragraphs are minor and should be corrected by the owner's maintenance forces. Other conditions described above may have a potential for further deterioration and for this reason, they need to be further investigated and corrected to ensure the stability of the dam and appurtenances. The following is a summary of the problem areas encountered, with the appropriate recommended action:

1. The existing spillway type and location is not of an acceptable type. The possibility for erosion and breaching of the dam presents a potentially dangerous situation and therefore requires immediate attention. The spillway channel should be reshaped, paved and lined or some other suitable structure of adequate size should be built to protect the dam and abutment from possible erosion.

2. The erosion and local sloughing near the water level on the upstream face could increase and if not corrected could lead to an unsafe condition. The upstream slope therefore should be reestablished to its original condition and protected by riprap to prevent further erosion.

3. Currently there are no operating controls for the reservoir outlets due to rusted valve stems and missing wheels and wheel stands. These controls should be repaired or replaced and the intakes should be cleaned. Readily available access should be provided for the control structure.

4. All brush and saplings from the upstream and downstream slopes should be cleaned. All coniferous trees should be removed while larger hardwood trees should not be removed but should be inventoried and their condition monitored. If a

tree dies, the area around the tree should then be monitored for possible seepage.

5. A program of periodic inspection and maintenance of the dam and appurtenances should be provided, including yearly operation of the outlet works and lubrication of its moving parts. Instructions and programs for periodic inspection and operation, together with records of the inspection, should be filed for future reference. The emergency action plan described in Section 7.1d should be maintained and updated periodically during the life of the structure.

## SECTION 4 - OPERATION AND MAINTENANCE PROCEDURES

### 4.1 PROCEDURES

There are no operating procedures for the John D. Rockefeller Jr. Dam. Water flows over the spillway ditch in the wet seasons of the year and there is reportedly no flow in the dry summer months. The low level outlets are inoperable.

### 4.2 MAINTENANCE OF THE DAM

There is no regular maintenance schedule for the dam. The dam is checked occasionally and the road along the crest is regraded periodically by the staff of the owner. Brush and saplings are reportedly cut down about every two years. There is no other maintenance performed.

The low level outlet controls and downstream exit facilities are not cleaned, checked, maintained or lubricated.

### 4.3 WARNING SYSTEM IN EFFECT

There are no warning systems in effect or in preparation.

### 4.4 EVALUATION

The overall maintenance of the John D. Rockefeller Jr. Dam is considered inadequate in the following areas:

- a. Controls for low level outlets are not operable.
- b. The downstream outlet for the low level outlet pipe is covered by rocks and debris.
- c. There is brush and tree growth on both the upstream and downstream faces of the dam.
- d. There is local erosion and sloughing on the upstream slope.
- e. No formal operation and maintenance procedures and manuals exist for the project.

## SECTION 5 - HYDROLOGIC/HYDRAULIC

### 5.1 DRAINAGE AREA CHARACTERISTICS

The John D. Rockefeller Jr. Dam is located at the headwaters of an unnamed tributary of the Pocantico River, about two miles northeast of Tarrytown and 1-1/2 miles west of the junction of the Taconic State Parkway and Sawmill River Parkway (Hydrologic Unit Code No. 02030101). The drainage basin (0.16 square miles) consists of relatively steep wooded slopes with no defined river channels or surface storage and with little development.

### 5.2 ANALYSIS CRITERIA

The analysis of the adequacy of the spillway was performed by developing a design flood, using the unit hydrograph method and the Probable Maximum Precipitation (PMP). The all season, 200 square mile 24 hours, PMP for the Westchester area (Zone 1) taken from Weather Bureau sources, was 22 inches. The unit hydrograph was developed for the drainage basin, by using the average Snyder coefficients of  $640 C_p = 400$  and  $C_T = 2.0$ . Rainfall losses of 2.0 inches (initial loss) and 0.1 inch per hour (constant loss) were used. In accordance with the "Recommended Guidelines for Safety Inspection of Dams", the adequacy of the spillway was analyzed using the Probable Maximum Flood (PMF). A multi-plan analysis was performed to test the spillway under the full, 0.75, 0.50 and 0.25 PMF.

### 5.3 SPILLWAY CAPACITY

The spillway of the John D. Rockefeller Jr. Dam is an irregular earth channel situated near the contact of the dam with the right abutment. The dimensions of the channel vary from point to point and the discharge capacity was computed across the roadway, which was assumed to be the control of the channel, using the Mannings equation. The computed discharge at a depth of 5.0 feet is 780 cfs.

### 5.4 RESERVOIR CAPACITY

The normal reservoir capacity is listed as 290 acre-feet (see Appendix F) but this is believed to be incorrect. It is estimated that the normal capacity is closer to 180 acre-feet. The computed surcharge storage between the spillway crest El 299 and top of dam El 305.5 is 108 acre-feet which is equivalent to 12.8 inches of run-off.

### 5.5 FLOODS OF RECORD

There are no records available of floods or maximum lake elevations.

#### 5.6 OVERTOPPING POTENTIAL

The potential of the dam being overtopped was investigated on the basis of the spillway discharge capacity and the available surcharge storage to meet the selected design flood inflows.

The analysis was performed assuming that the lake level was at spillway crest elevation (299.0 feet) at the start of the flood event, and the reservoir drain was assumed closed. The computed inflow peak (PMF) is 561 cfs. The HEC-1DB analysis indicated that the spillway is capable of passing the PMF without the dam being overtopped:

<u>RATIO OF PMF</u>	<u>INFLOW PEAK</u>	<u>OUTFLOW PEAK</u>	<u>OVERTOPPING</u>
1.00	561 cfs	421 cfs	0 ft.
0.75	421 cfs	280 cfs	0 ft.
0.50	280 cfs	150 cfs	0 ft.
0.25	140 cfs	73 cfs	0 ft.

#### 5.7 FINDINGS

The John D. Rockefeller Jr. Dam spillway has sufficient capacity to pass the outflow from the PMF routed through the reservoir. Therefore, spillway capacity is adequate.

## SECTION 6 - STRUCTURAL STABILITY

### 6.1 EVALUATION OF STRUCTURAL STABILITY

#### a. Visual Observations

Visual observations did not indicate any structural problems with the embankment or appurtenant structures with the reservoir at its present level. There are no adverse conditions which would affect the stability of the dam at its present level. As detailed in Section 3, however, a potential exists for erosion at the contact of the dam with the right abutment during flood conditions due to the spillway arrangement.

#### b. Design and Construction Data

The four contract drawings, one as-built drawing and the brief set of specifications have been located. A review of these does not reveal any structural stability problems except as noted above for the spillway.

#### c. Operating Records

There are no operating records presently kept or available. There are no records or reports of any operational problems which would effect the stability of the dam.

#### d. Post-Construction Changes

There are no reported post-construction changes other than the maintenance of the road along the crest. This has no effect on the stability of the dam.

#### e. Seismic Stability

The dam is located in Seismic Zone 1 and in accordance with recommended Phase I guidelines, it does not warrant a seismic analysis.



## SECTION 7 - ASSESSMENT/RECOMMENDATIONS

### 7.1 ASSESSMENT

#### a. Safety

Examination of available documents and a visual inspection of the dam and the appurtenant structures did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some deficiencies which require further investigation and remedial action.

The earth embankment is considered to be stable under present conditions; however, the location, configuration and type of the present spillway is unacceptable. This presents a potentially hazardous condition under higher than observed flood discharge levels when water flowing over the unlined earth channel at high rates could erode the embankment resulting in the breaking of the dam.

Using the Corps of Engineers screening criteria for review of spillway adequacy, it has been determined that the dam would not be overtopped for the PMF. The spillway capacity is adequate although the configuration and type are not acceptable.

#### b. Adequacy of Information

This report and its conclusions are based on a visual inspection, interview data, contract drawings, and office hydrologic and hydraulic studies. This information and data are adequate for a Phase I inspection.

#### c. Need for Additional Investigations

Investigations are required to determine the exact dimensions, capacity or and to appraise the stability of the existing spillway. Following this study, an acceptable engineering solution should be developed to correct this spillway safety problem.

#### d. Urgency

The investigation of the spillway which are required must be initiated within 3 months from the date of notification. Within 12 months of notification, remedial measures developed as a result of this investigation must be initiated, with completion of this measure during the following year. In the interim, develop an emergency action plan for the notification of downstream residents and proper around-the-clock surveillance of the dam during periods of extreme runoff. The other problem areas listed below must be corrected within one year of notification.

## 7.2 RECOMMENDED MEASURES

Following the engineering studies of the spillway other recommended measures are as follows:

1. The local erosion and sloughing on the upstream face near the current water level should be corrected by re-grading and protecting with riprap.

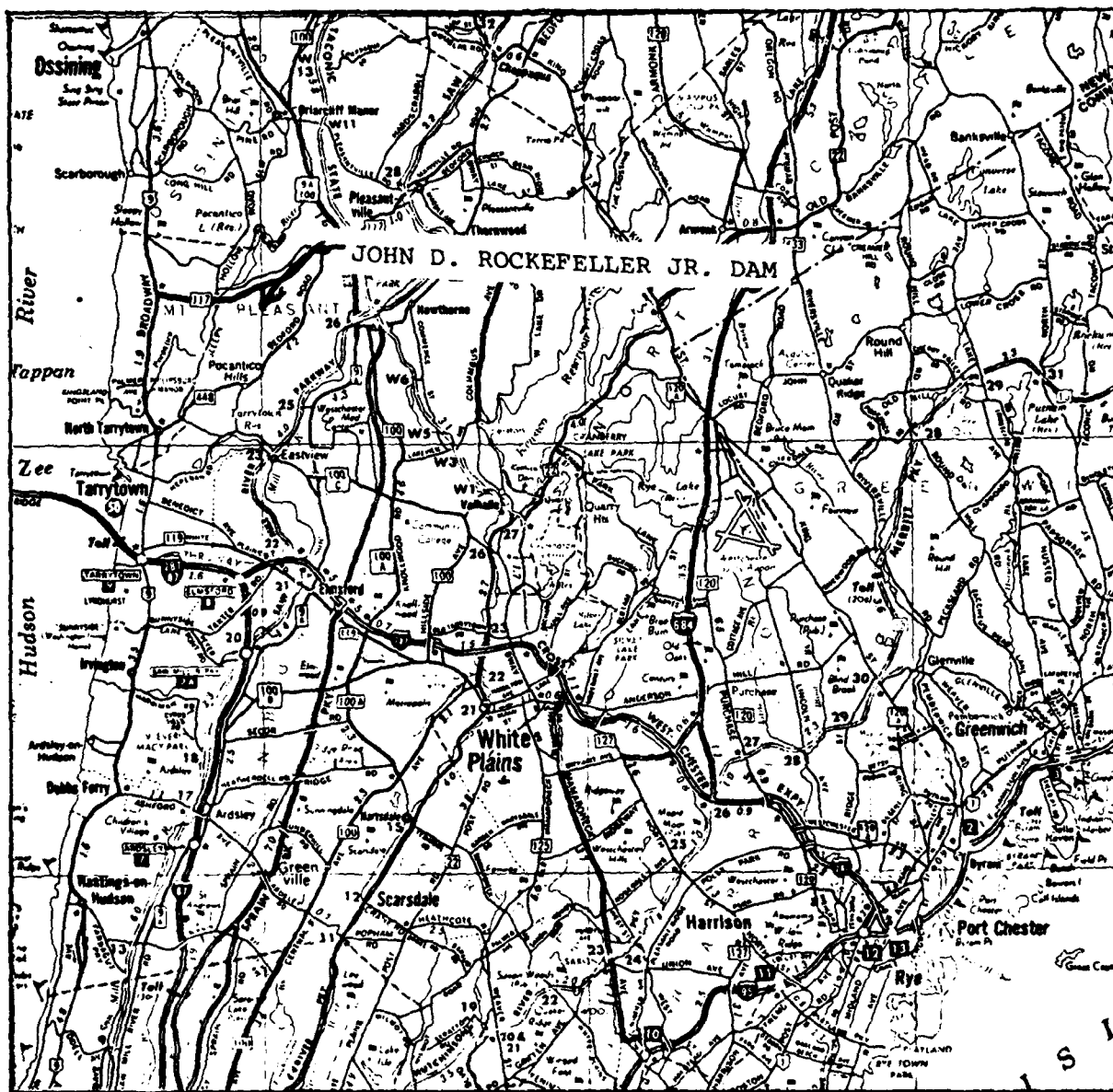
2. Operating mechanisms for the low level outlets should be repaired or replaced. The outlet near the toe of the dam for the low level outlet should be cleared of stones, debris and brush.

3. All brush and saplings from the upstream and downstream slopes should be cleaned. All coniferous trees should be removed while larger hardwood trees should be inventoried and their condition monitored. If a tree dies, the area around the tree should then be monitored for possible seepage. A program of periodic mowing and cutting should also be provided.

4. A program of periodic inspection and maintenance of the dam and appurtenances should be established, including yearly operation of the outlet system and lubrication of its moving parts. This information should be documented for future reference. The emergency action plan detailed in Section 7.1d should be maintained and updated periodically during the life of the structure.

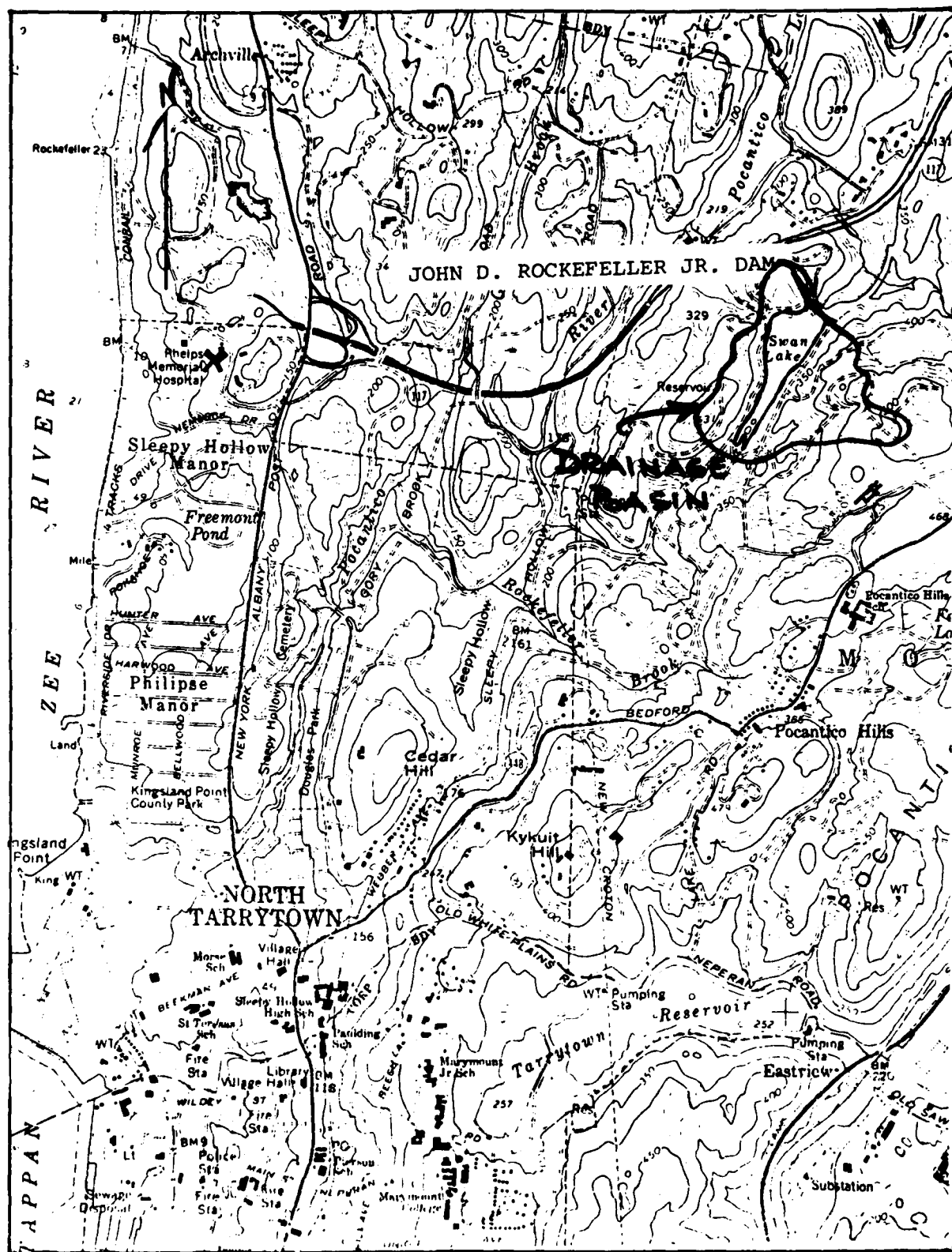
DRAWINGS

APPENDIX A

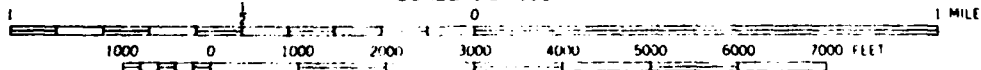


Scale 1" = 2.2 miles

JOHN D. ROCKEFELLER JR.  
DAM  
VICINITY MAP

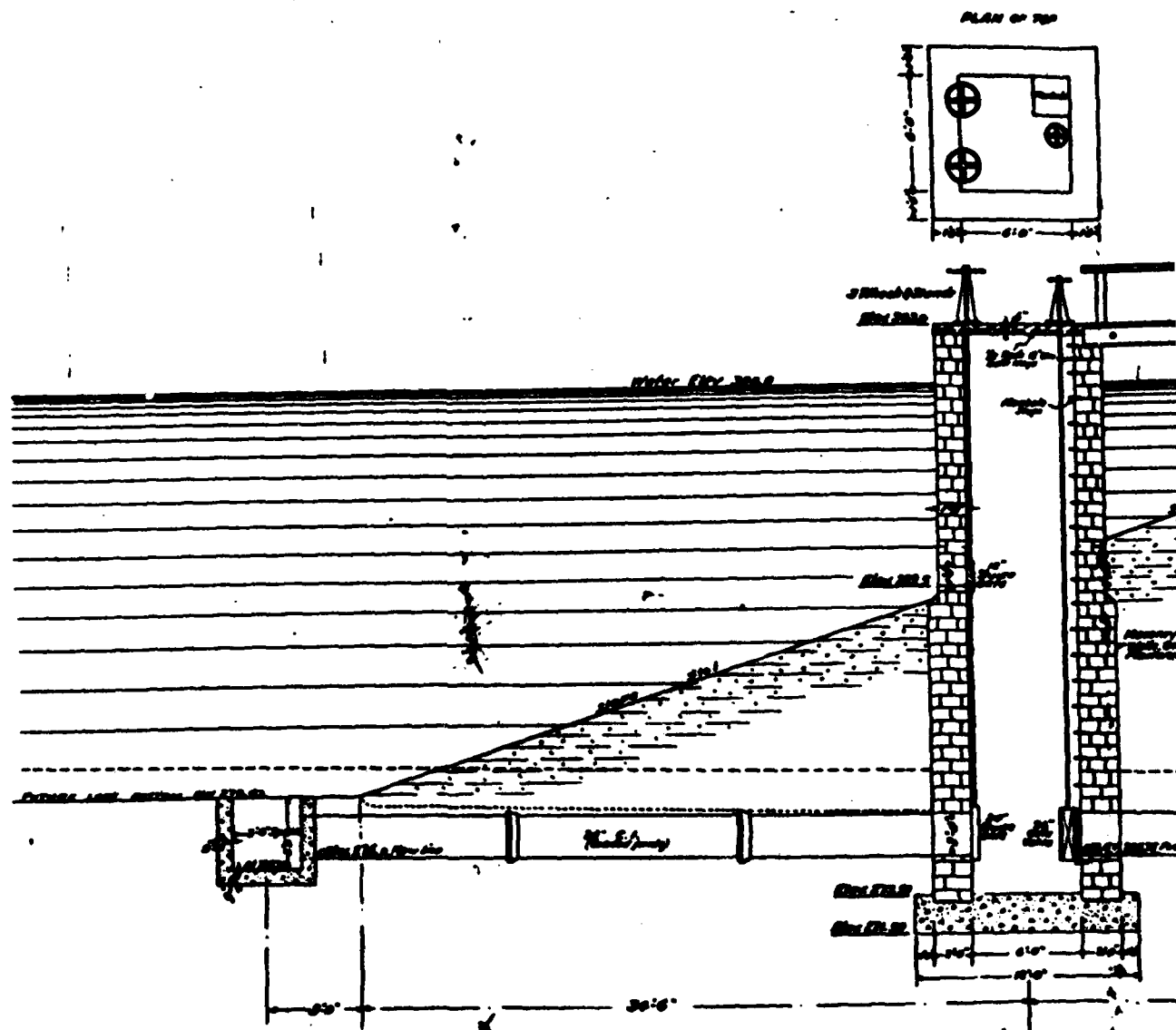


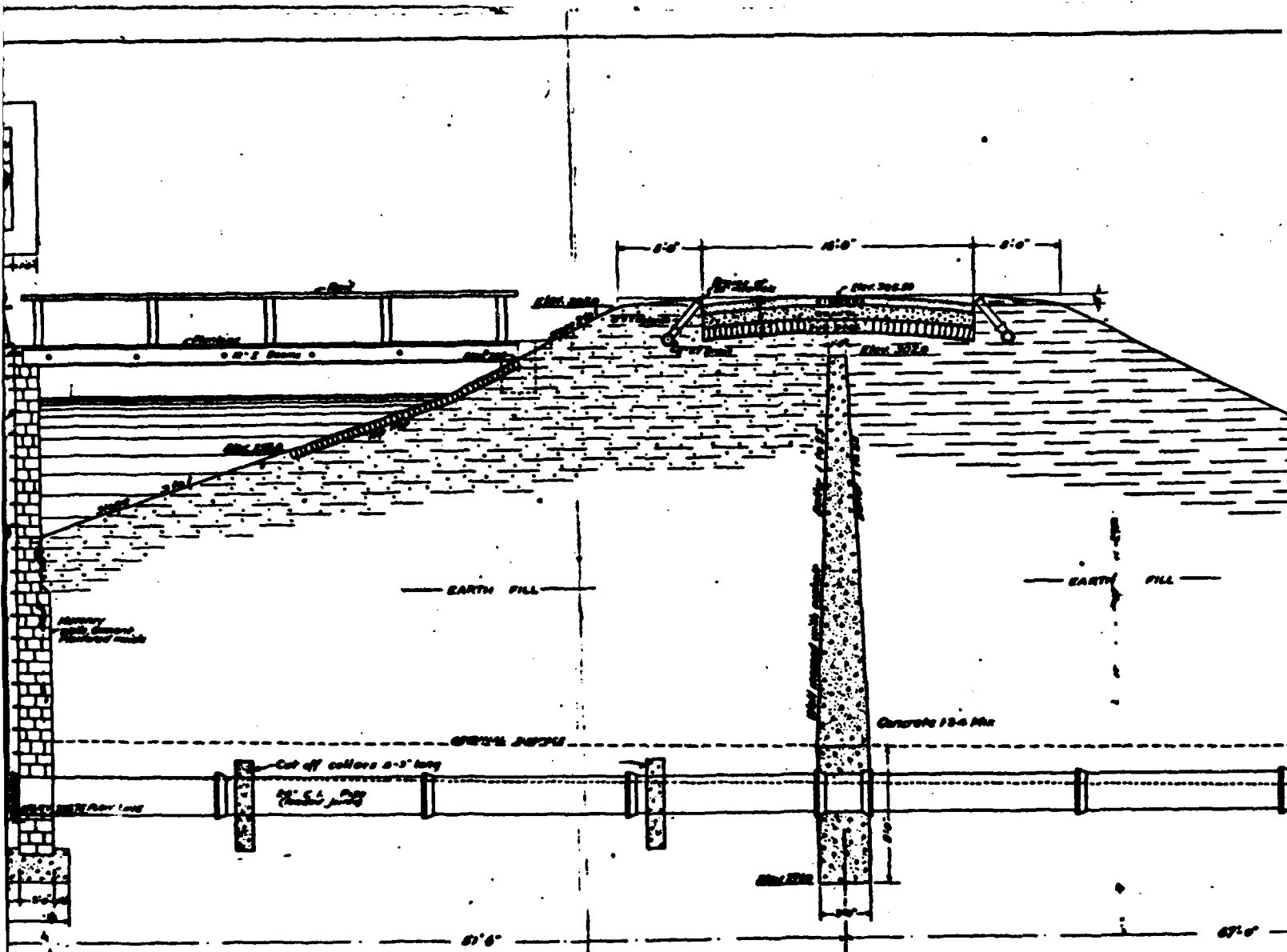
SCALE 1:24,000



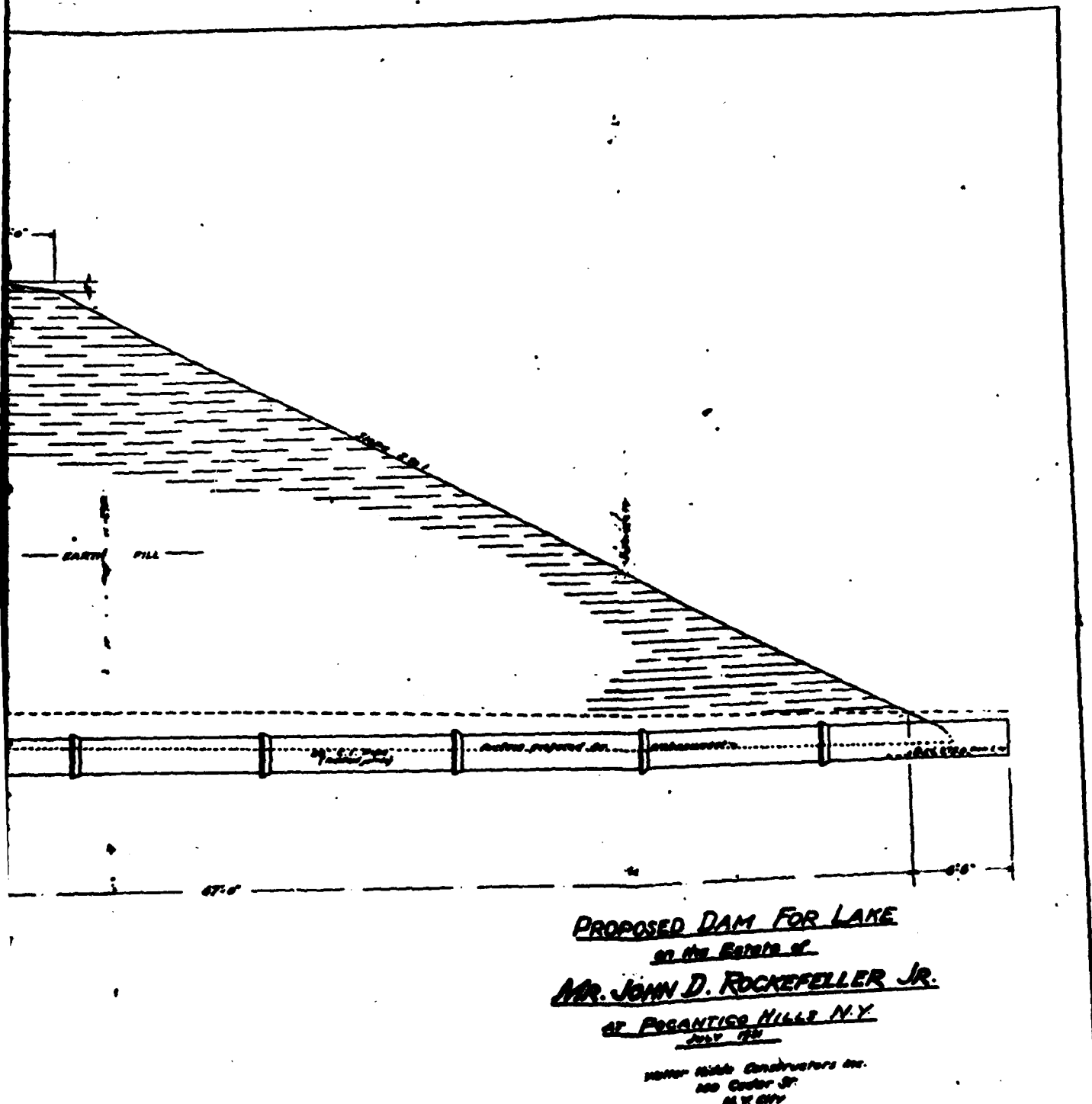
WHITE PLAINS, N. Y. QUAD TOPOGRAPHIC MAP

JOHN D. ROCKEFELLER JR. DAM





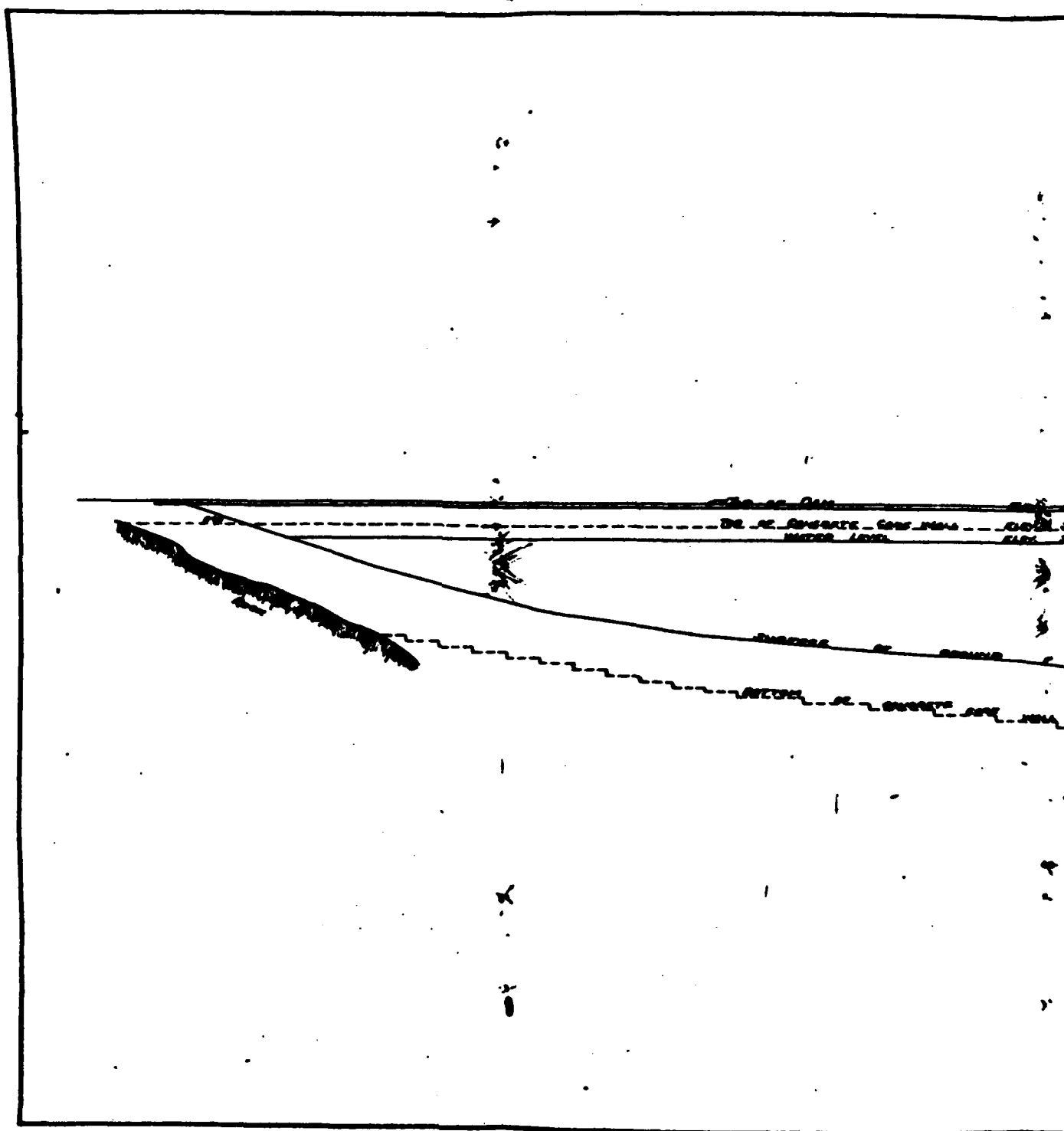
CROSS SECTION OF DAM  
Scale 1" = 1'

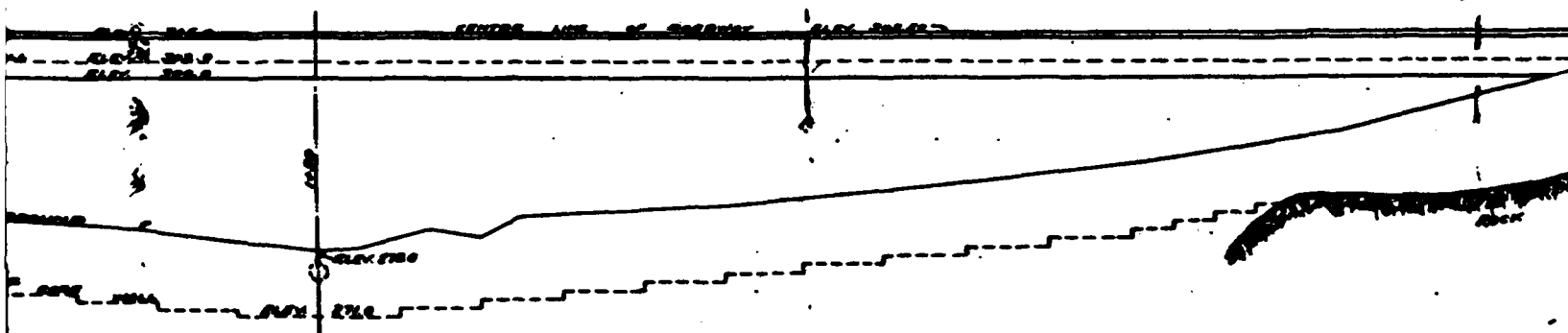


PROPOSED DAM FOR LAKE  
ON THE BASIS OF  
MR. JOHN D. ROCKEFELLER JR.  
OF PRANTISS HILLS N.Y.  
JULY 1920

HARRY W. CONSTRUCTORS INC.  
 100 CROSBY ST.  
 N. Y. CITY

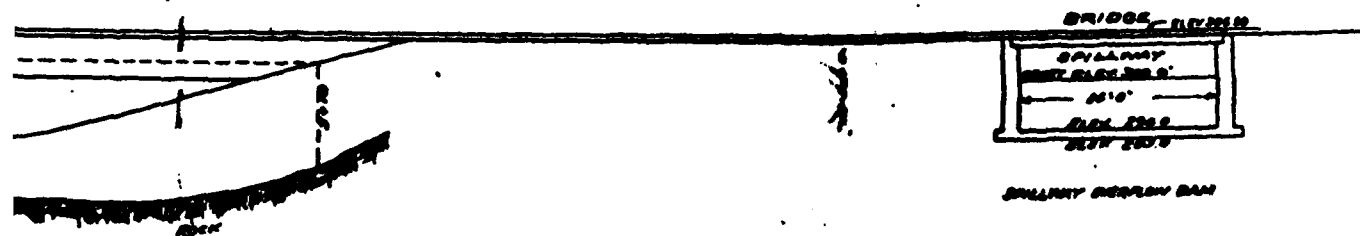






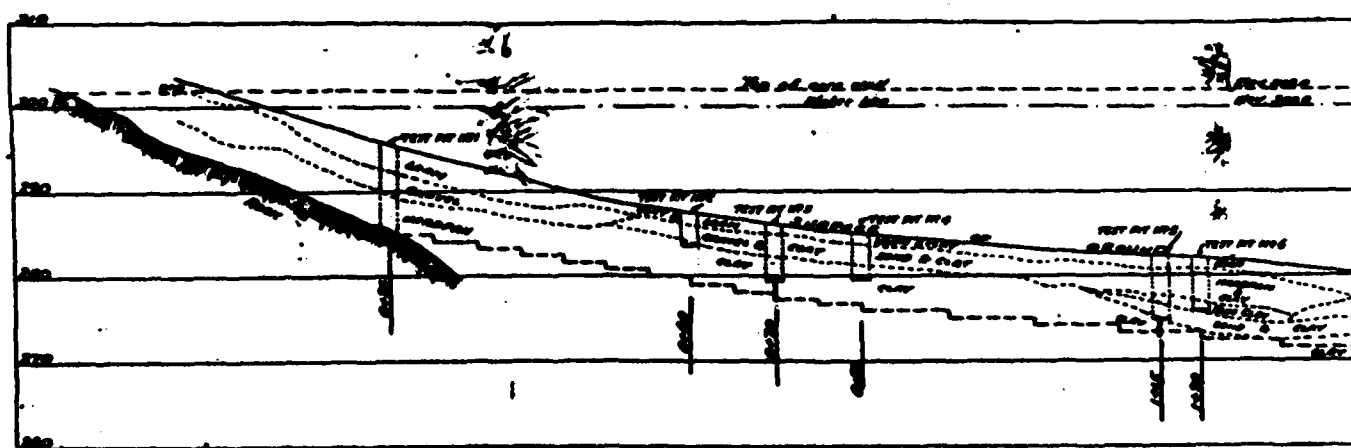
SECTIONAL ELEVATION  
SCALE 1"=1'

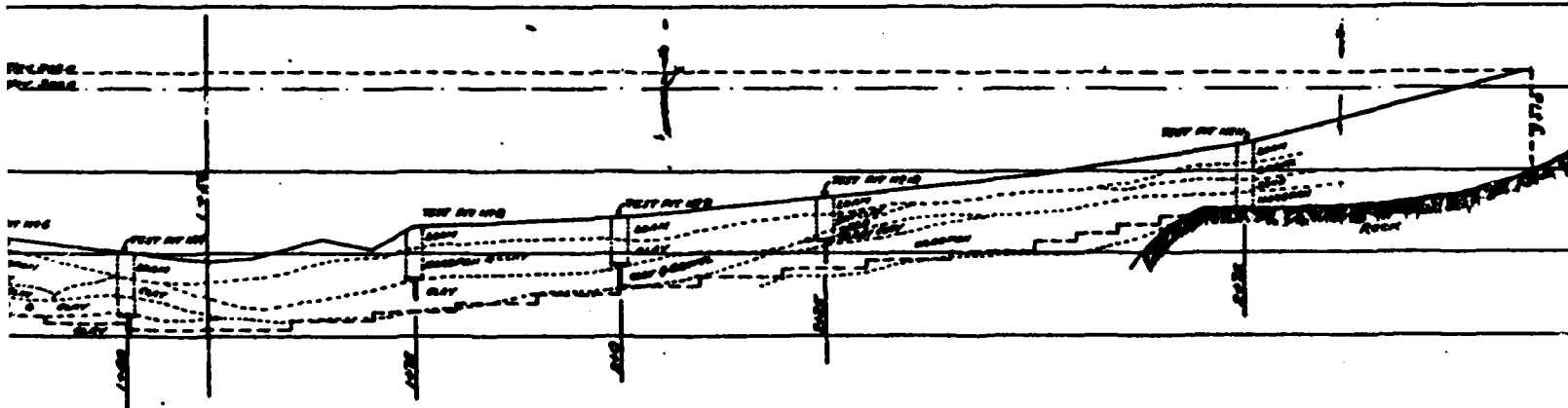
2



PROPOSED DAM FOR LAKE  
ON THE ESTATE OF  
MR. JOHN D. ROCKEFELLER JR.  
OF POQUONKILL HILLS N.Y.  
JULY 1920

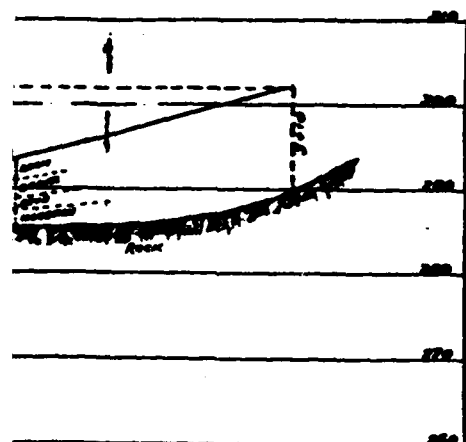
WATER POWER ENGINEERS, INC.  
100 CORTLAND ST.  
N. Y. CITY





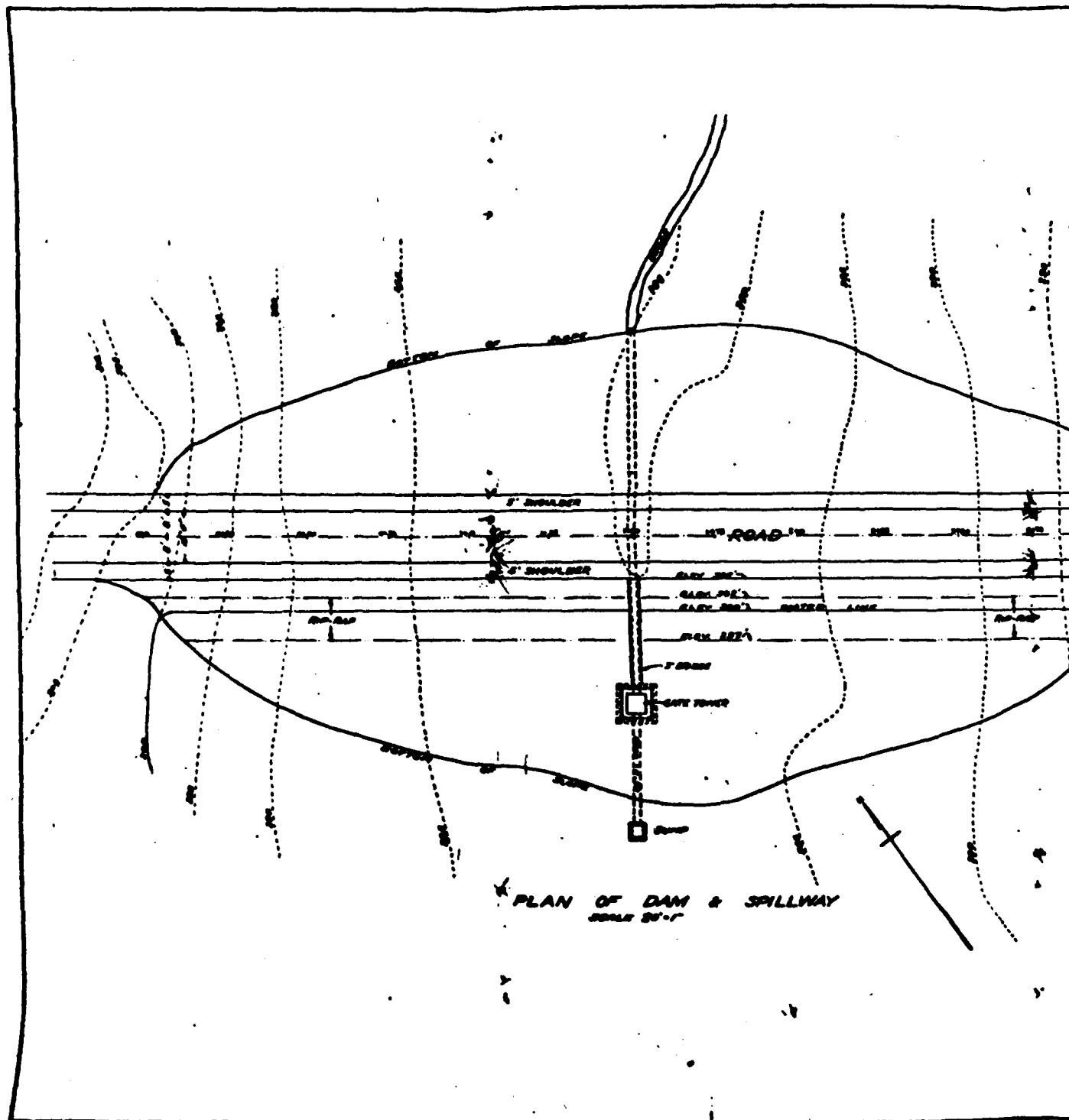
**LONGITUDINAL SECTION**  
**SCALE 10:1 -**  
**North & Main**

2

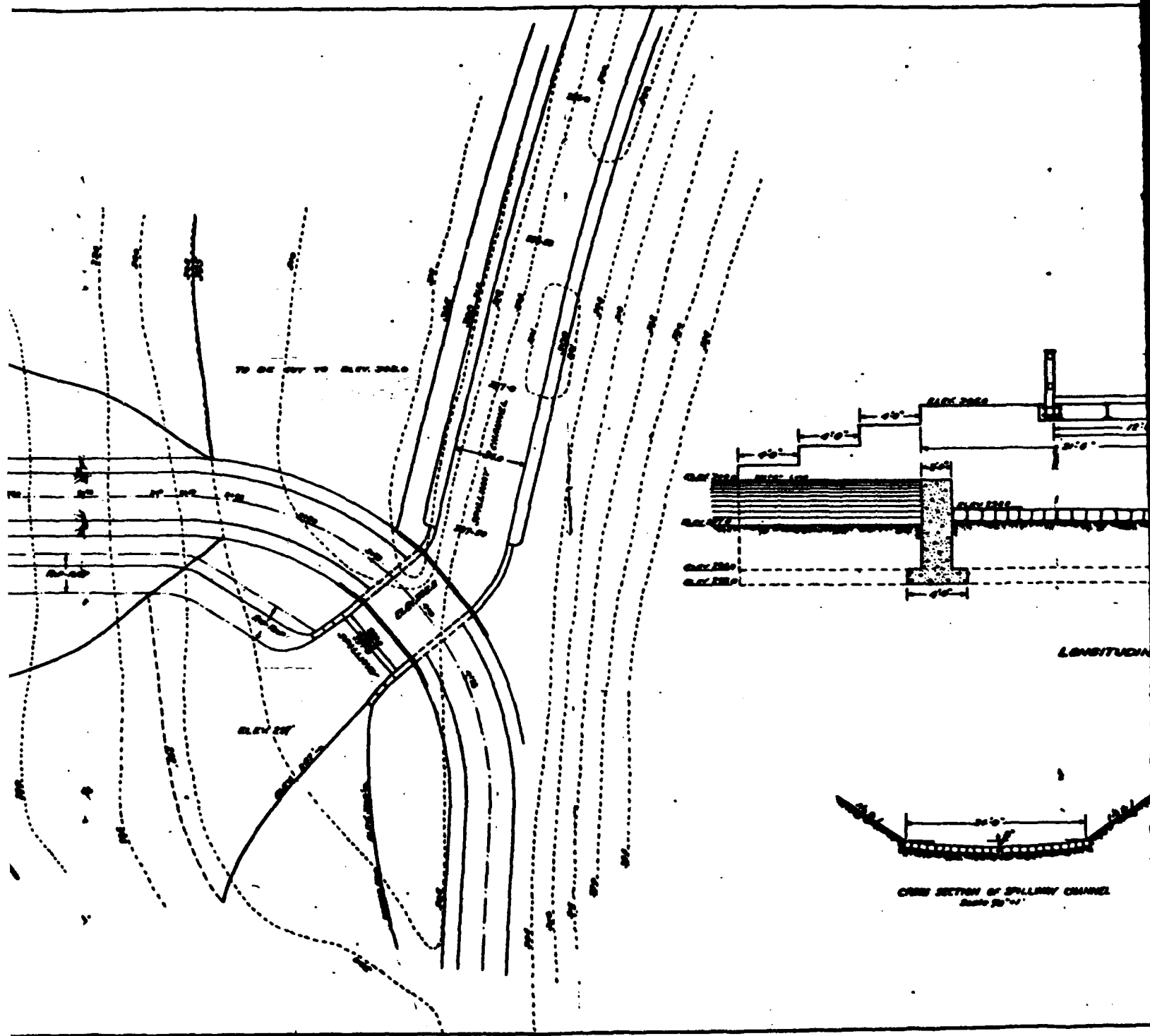


PROPOSED DAM FOR LAKE  
on the Estate of  
**MR. JOHN D. ROCKEFELLER JR.**  
AT POCAHONTAS HILLS N.Y.  
JULY 1931

Water Works Constructors Inc.  
100 Cedar St.  
N. Y. City

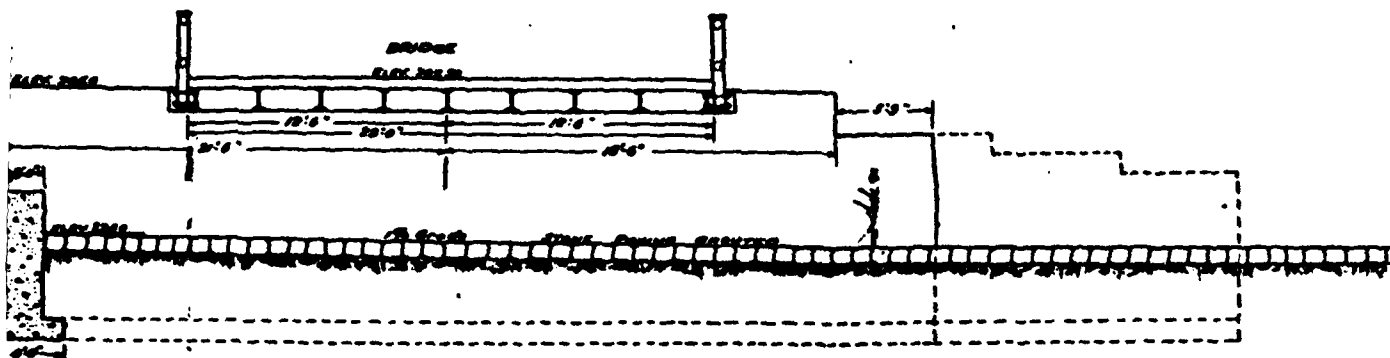


PLAN OF DAM & SPILLWAY  
SCALE 50'-1"



2

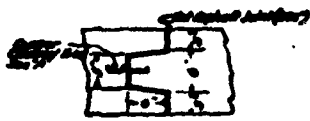




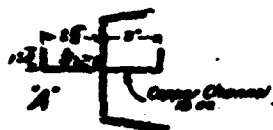
LONGITUDINAL SECTION OF SPILLWAY  
SCALE 1/4" = 1'



SECTION OF SPILLWAY CHANNEL  
SCALE 1/4" = 1'

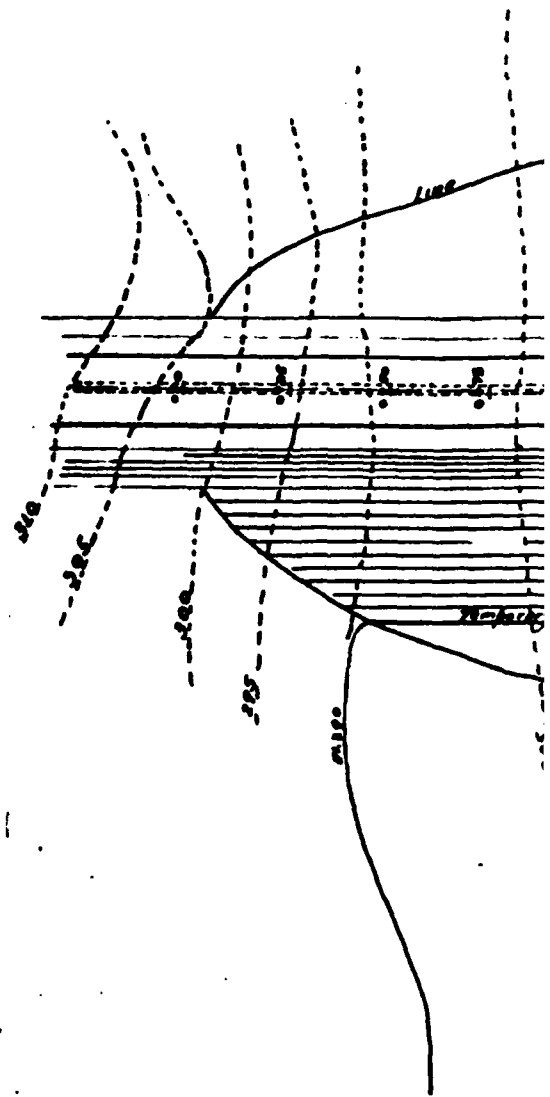


TYPICAL CONSTRUCTION JOINT  
SCALE 1/4" = 1'

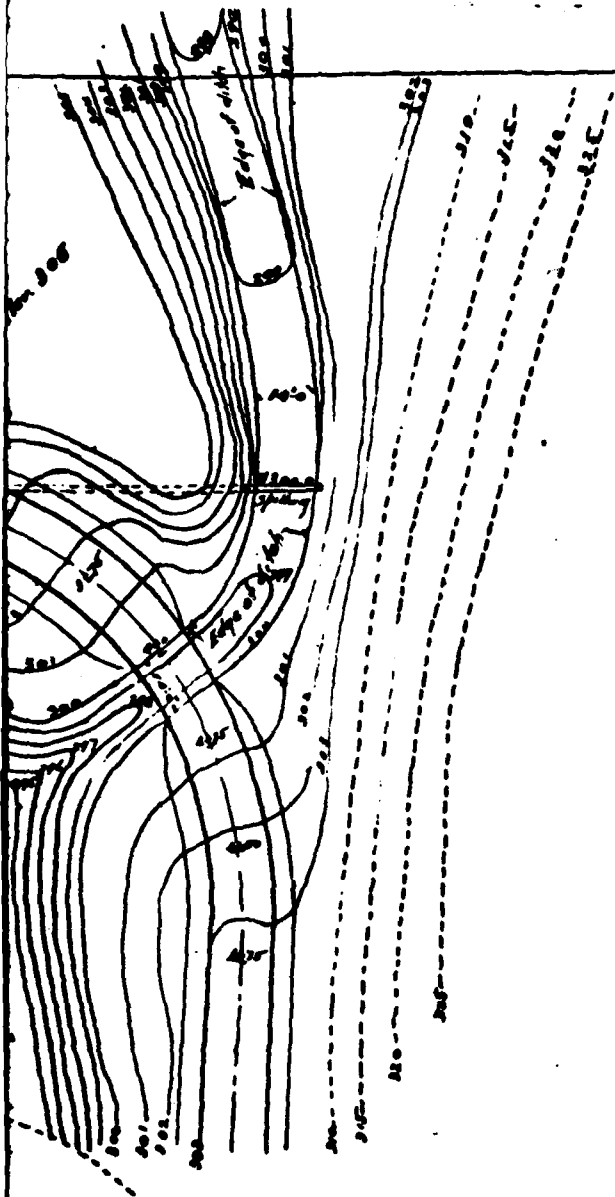


**PROPOSED DAM FOR LAKE**  
**on the Estate of**  
**MR. JOHN D. ROCKEFELLER JR.**  
**AT POCAHONTO HILLS N.Y.**  
**JULY 1901**

Heller Kille Constructors Inc.  
100 Cedar St.  
N.Y. CITY







PLAN  
of  
REVISED CORE WALL AND SPILLWAY  
SCALE 1"=20'  
for  
PROPOSED DAM FOR LAKE  
on the Estate of  
MR. JOHN D. ROCKEFELLER JR.  
AT POCAHONTS HILLS N.Y.  
JULY 1938  
REVISED APRIL 1939  
Mott & Kiddle Constructors Inc.  
100 Cedar St.  
New York

PHOTOGRAPHS

APPENDIX B



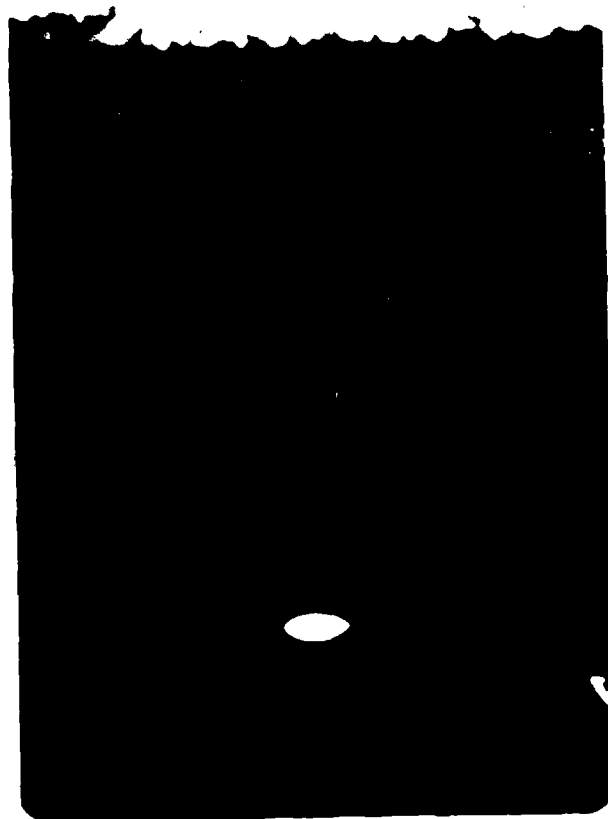
2. UPSTREAM VIEW OF DAM



3. VIEW ACROSS CREST OF DAM TO RIGHT ABUTMENT



4. OUTLET WORKS TOWER



5. VALVE CONTROL ROD  
FOR UPSTREAM GATE  
(NOTE: CORROSION  
BELOW WATER LEVEL)

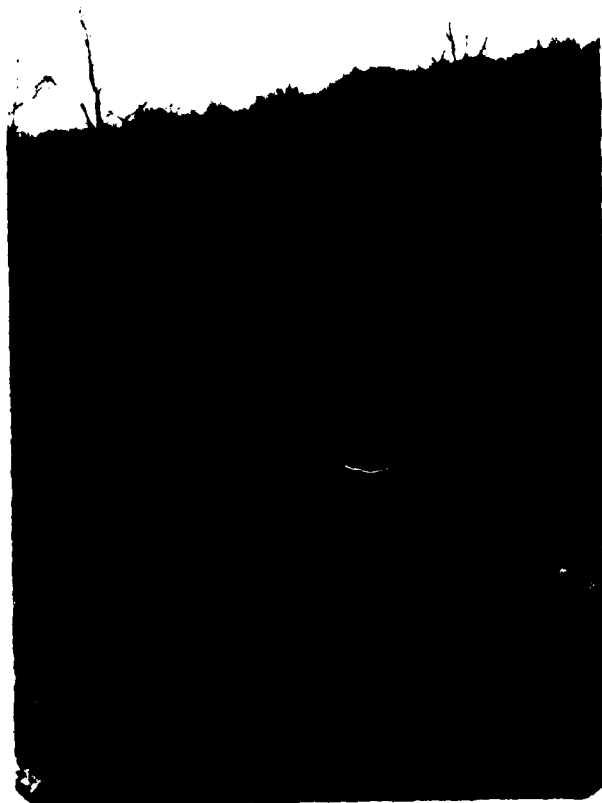


6. VIEW OF SPILLWAY LOOKING DOWNSTREAM

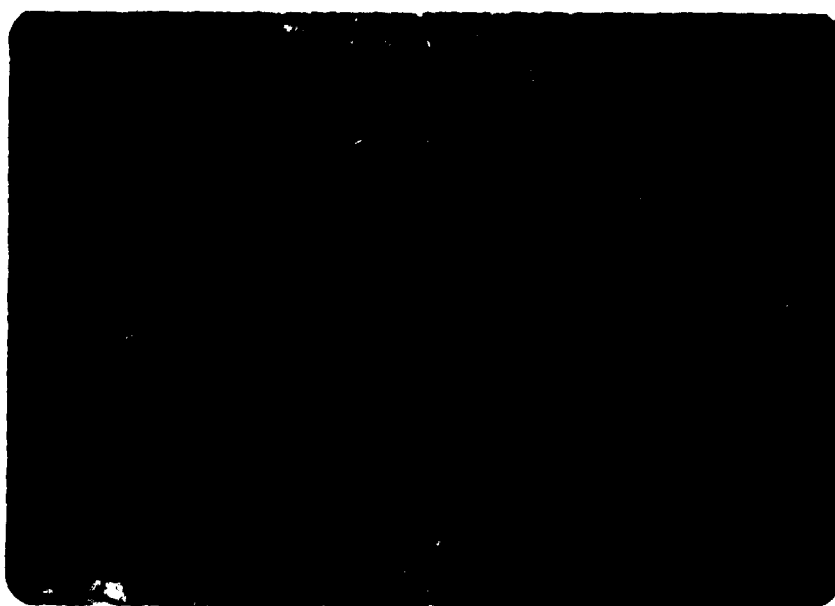


7. VIEW OF SPILLWAY LOOKING UPSTREAM





8. CLOSE-UP VIEW OF  
UPSTREAM FACE OF  
DAM.  
(NOTE: IRREGULAR  
SLOPE AND LOCAL  
EROSION)



9. LOW LEVEL OUTLET DOWNSTREAM OF TOE

VISUAL INSPECTION CHECKLIST

APPENDIX C

VISUAL INSPECTION CHECKLIST

1) Basic Data

a. General

Name of Dam John D. Rockefeller Jr.

Fed. I.D. # NY 665 DEC Dam No. 922

River Basin Lower Hudson

Location: Town Pocantico Hills County Westchester

Stream Name Pocantico River

Tributary of Hudson River

Latitude (N) 41-06.9 Longitude (W) 73-50.3

Type of Dam EARTH

Hazard Category 1

Date(s) of Inspection April 2 1981

Weather Conditions Cloudy 50-55° F

Reservoir Level at Time of Inspection 6 inch flow through Spillway

b. Inspection Personnel Kalman Szalay, Joe Fiteni Jr.

c. Persons Contacted (Including Address & Phone No.) Mr John Sandhein  
V.P. Operations - Greenrock Corp Pocantico Hills, NY, 10591.  
(914) . Also at same address contacted:  
Pete Vanhelden, P. Fernholz, Mike Berger and  
John Shroba.

d. History:

Date Constructed 1931-1932 Date(s) Reconstructed \_\_\_\_\_

Designer Walter Kidde Constructors Inc

Constructed By As above with Staff of owner

Owner Estate of John D. Rockefeller - Greenrock Corp.

(2) Embankment

a. Characteristics

- (1) Embankment Material EARTH Fill
- (2) Cutoff Type Concrete Core Wall Socketed into Rock Foundation
- (3) Impervious Core Concrete Core Wall
- (4) Internal Drainage System None
- (5) Miscellaneous Limited riprap section on upstream slope shown on drawings - not evident in field.

b. Crest

- (1) Vertical Alignment Good - Except where spillway cut crosses - intentionally sloped in this area
- (2) Horizontal Alignment Good
- (3) Surface Cracks None Visible
- (4) Miscellaneous

c. Upstream Slope

- (1) Slope (Estimate) (V:H) 1V TO 3H
- (2) Undesirable Growth or Debris, Animal Burrows None present
- (3) Sloughing, Subsidence or Depressions Local slope erosion and irregularity due to lack of riprap at waterline.

- (4) Slope Protection Riprap shown on drawings for limited area of slope - not presently visible on dam, local erosion present in this area.
- (5) Surface Cracks or Movement at Toe None

d. Downstream Slope

- (1) Slope (Estimate - V:H) 1 V To 2 H
- (2) Undesirable Growth or Debris, Animal Burrows Some brush  
Small tree growth.
- (3) Sloughing, Subsidence or Depressions None Visible.
- (4) Surface Cracks or Movement at Toe None Visible
- (5) Seepage None Visible
- (6) External Drainage System (Ditches, Trenches; Blanket) None  
Present
- (7) Condition Around Outlet Structure Outlet covered by stones.  
Not visible. Surrounding area overgrown. Some "rusty" seepage.
- (8) Seepage Beyond Toe None Visible

e. Abutments - Embankment Contact

Left Abutment Contact - Good, Right Abutment Contact  
Spillway flows in open cut at contact.

(1) Erosion at Contact None Visible

(2) Seepage Along Contact None Visible

3) Drainage System

a. Description of System None Shown on drawings or  
evident in field

b. Condition of System NA

c. Discharge from Drainage System NA

4) Instrumentation (Monumentation/Surveys, Observation Wells, Weirs,  
Piezometers, Etc.) No instruments present

5) Reservoir

- a. Slopes Vary - rolling hills to steep rock outcrops
- b. Sedimentation None visible
- c. Unusual Conditions Which Affect Dam None

6) Area Downstream of Dam

- a. Downstream Hazard (No. of Homes, Highways, etc.) High
- b. Seepage, Unusual Growth No visible seepage, Brush and tree covered slope and toe area -
- c. Evidence of Movement Beyond Toe of Dam None
- d. Condition of Downstream Channel generally full of brush outlet covered by stones

7) Spillway(s) (Including Discharge Conveyance Channel)

Spillway consists of unlined ditch cut through overburden near contact of dam with the right abutment No control

- a. General Spillway type is considered unacceptable. Large flows over spillway could erode a deep channel before reaching underlying rock. This would create an unstable condition at right abutment contact.
- b. Condition of Service Spillway See note under "a"  
No erosion problem present - currently.

c. Condition of Auxiliary Spillway None present

d. Condition of Discharge Conveyance Channel - Channel is very small - not as shown on drawings. Capacity is very limited before flow would occur over surrounding road and field.

(3) Reservoir Drain/Outlet

Type: Pipe ☒ Conduit \_\_\_\_\_ Other \_\_\_\_\_

Material: Concrete \_\_\_\_\_ Metal ☒ Other \_\_\_\_\_

Size: 24 inch ID Length 164.5

Invert Elevations: Entrance 276.0 Exit 275.0

Physical Condition (Describe): \_\_\_\_\_ Unobservable ☒

Material: NA

Joints: NA Alignment \_\_\_\_\_

Structural Integrity: NA

Hydraulic Capability: NA

Means of Control: <sup>Upstream</sup> 2 Gates <sub>side</sub> <sup>Downstream</sup> Valve <sub>side</sub> Uncontrolled \_\_\_\_\_

Operation: Operable \_\_\_\_\_ Inoperable ☒ Other \_\_\_\_\_

Present Condition (Describe): Rods to gates are badly rusted. wheels and stands required to operate gates not present at outlet works.



9) Structural

a. Concrete Surfaces See item 8

b. Structural Cracking See item 8

c. Movement - Horizontal & Vertical Alignment (Settlement) NA

d. Junctions with Abutments or Embankments NA

e. Drains - Foundation, Joint, Face NA

f. Water Passages, Conduits, Sluices Item 8

g. Seepage or Leakage NA

h. Joints - Construction, etc. NA

i. Foundation NA

j. Abutments NA

k. Control Gates See item B

l. Approach & Outlet Channels See item B

m. Energy Dissipators (Plunge Pool, etc.) NA

n. Intake Structures See item B

o. Stability NA

p. Miscellaneous NA

10) Appurtenant Structures (Powerhouse, Lock, Gatehouse, Other)

a. Description and Condition

No Appurtenant  
Structures present.

HYDROLOGIC DATA AND COMPUTATIONS

APPENDIX D

CHECK LIST FOR DAMS  
HYDROLOGIC AND HYDRAULIC  
ENGINEERING DATA

1

AREA-CAPACITY DATA:

	<u>Elevation</u> (ft.)	<u>Surface Area</u> (acres)	<u>Storage Capacity</u> (acre-ft.)
1) Top of Dam	<u>305.5</u>	<u>19.3</u>	<u>289</u>
2) Design High Water (Max. Design Pool)	<u>Unknown</u>	<u>          </u>	<u>          </u>
3) Auxiliary Spillway Crest	<u>NA</u>	<u>          </u>	<u>          </u>
4) Pool Level with Flashboards	<u>NA</u>	<u>          </u>	<u>180</u>
5) Service Spillway Crest	<u>299.0</u>	<u>18+</u>	<u>173</u>

DISCHARGES

	<u>Volume</u> (cfs)
1) Average Daily	<u>unknown</u>
2) Spillway @ Maximum High Water	<u>1570 ±</u>
3) Spillway @ Design High Water	<u>unknown</u>
4) Spillway @ Auxiliary Spillway Crest Elevation	<u>          </u>
5) Low Level Outlet	<u>150±</u>
6) Total (of all facilities) @ Maximum High Water	<u>1720</u>
7) Maximum Known Flood	<u>unknown</u>
8) At Time of Inspection	<u>unknown</u>

CREST: DAMELEVATION: 305.5Type: EarthWidth: 21.0' Length: 325'Spillover Uncontrolled Ditch - naturalLocation Right abutment contact

## SPILLWAY:

## SERVICE

## AUXILIARY

299.0 Elevation                     open uncontrolled cut Type                     Varies Width                     Type of Control✓ Uncontrolled                     

Controlled:

                     Type                       
(Flashboards; gate)                     Number                                          Size/Length                                          Invert Material                                          Anticipated Length  
of operating service                                          Chute Length                     ? Height Between Spillway Crest  
& Approach Channel Invert  
(Weir Flow)

HYDROMETEROLOGICAL GAGES: NONE USED

Type : \_\_\_\_\_

Location: \_\_\_\_\_

Records:

Date - \_\_\_\_\_

Max. Reading - \_\_\_\_\_

FLOOD WATER CONTROL SYSTEM: None

Warning System: \_\_\_\_\_

Method of Controlled Releases (mechanisms): None

\_\_\_\_\_  
\_\_\_\_\_

DRAINAGE AREA: 0.16 SQ miles

DRAINAGE BASIN RUNOFF CHARACTERISTICS:

Land Use - Type: WOODLANDS AND MEADOWS

Terrain - Relief: Gently Sloping

Surface - Soil: \_\_\_\_\_

Runoff Potential (existing or planned extensive alterations to existing  
(surface or subsurface conditions)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Potential Sedimentation problem areas (natural or man-made; present or future)

None  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Potential Backwater problem areas for levels at maximum storage capacity  
including surcharge storage:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dikes - Floodwalls (overflow & non-overflow) - Low reaches along the  
Reservoir perimeter:

Location: None

Elevation: \_\_\_\_\_

Reservoir:

Length @ Maximum Pool 0.4 (Miles)

Length of Shoreline (@ Spillway Crest) 1 1/2 (Miles)



# TAMS

Job No. 1579-12

Project JD ROCKEFELLER DAM INSPECTION

Subject HYDROLOGIC / HYDRAULIC COMPUTATIONS

Sheet 1 of 20

Date APRIL '81

By D.L.C

Ch'k. by \_\_\_\_\_

HYDROMET # 33

ZONE 1

ALL SEASON 200 SQ MILE 24 HOUR PMP = 22 inches

Duration (HRS) %

6 111

12 123

24 132

48 142

$L = 1.3'' = 2600' = 0.49 \text{ miles}$

$L_a = 0.6'' = 1200' = 0.23 \text{ miles}$

Using average Snyder Coef.  $C_T = 2$

$640 C_p = 400$

$T_p = 2(0.49 \times 0.23)^{0.3} = 1.04 \text{ hours}$

$T_n = 1.04 / 5.5 = 0.189 \text{ hrs} = 11.34 \text{ min}$  For  $T_p = 0.50 \text{ hrs}$

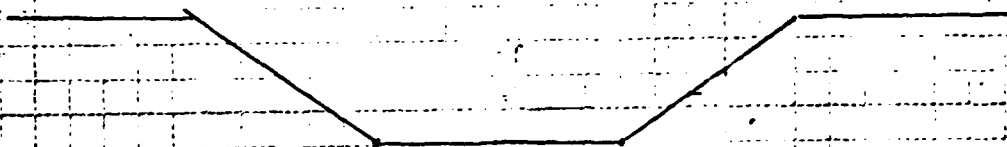
$T_{PR} = T_p + 0.25(T_R - T_n) = 1.04 + 0.25(0.5 - 0.189) = 1.04 + 0.0775$

$T_{PR} = 1.12$  (2 decimal places)

# TAMS

Job No. 1579-12  
 Project JD ROCKEFELLER DAM  
 Subject HYDROLOGIC/HYDRAULIC COMPUTATIONS

Sheet 2 of 20  
 Date APR 15 81  
 By DLC  
 Ch'k. by \_\_\_\_\_



SPILLWAY IS IRREGULAR EARTH CHANNEL at NE corner of DAM

SPILLWAY DISCHARGE COMPUTED using  $Q = 1.49/n AR^{2/3} S^{1/2}$

Set  $S = 0.001$   $S^{1/2} = 0.032$

Set  $n = 0.035$   $1.49/n = 42.6$

INVERT of channel at approx elevation 299

EL	WIDTH	AREA	Q
299	9	0	0
300	14	11	12.5
302	80	110	180
304	115	310	816
305.5	150	510	1570

WIDTH APPROXIMATED FROM DESIGN DRAWING dd July 31

# TAMS

Job No. 1519-12  
 Project JD ROCKEFELLER DAM INSPECTION  
 Subject HYDRAULIC / HYDROLOGIC COMPUTATIONS

Sheet 3 of 20  
 Date APRIL 1961  
 By D.L.C.  
 Ch'k. by \_\_\_\_\_

## Surcharge Storage computations

EL (Ft)	$\Delta H$ (Ft)	AREA (Ac)	MEAN AREA (Ac)	$\Delta VOLUME$ (Ac Ft)	SURCHARGE STORAGE (Ac Ft)	CAPACITY
299						172
300		18.4			0	180
	10		19.8	19.8		
310		21.1			198	378
	10		26.2	26.2		
320		31.2				640

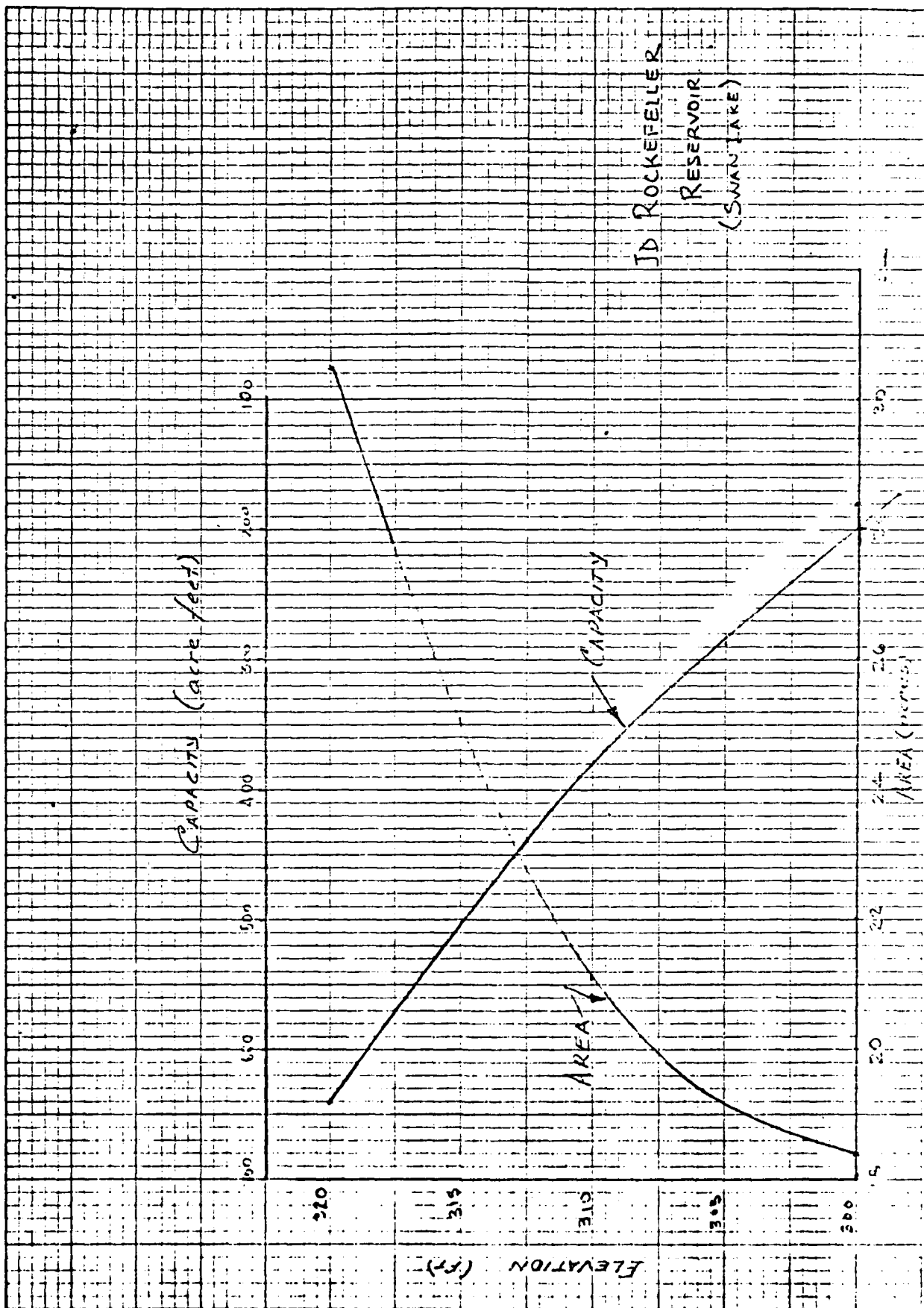
LAKE AREA 18.37

DRAINAGE AREA 103.14

% impervious 17.472

## CROSS SECTION D/S of DAM STN 6+50

EL	DIST	DIST
290	0	320
270	100	150
268	120	140
265	128	135



JD ROCKEFELLER  
RESERVOIR  
(SWAN LAKE)



PREVIEW OF SEQUENCE OF STREAM NETWORK CALCULATIONS

1 RUNOFF HYDROGRAPH AT  
 2 ROUTE HYDROGRAPH TO  
 3 ROUTE HYDROGRAPH TO  
 END OF NETWORK

Sheet 6 of 20

\*\*\*\*\*  
FLOOD HYDROGRAPH PACKAGE (HEC-1)  
DAY SAFETY VERSION JULY 1975  
LAST MODIFICATION 31 APR 79  
\*\*\*\*\*

RUN DATE: 3/26/85  
TIME: 05:30:37

JO ROCKEFELLER DAM  
PHASE 1 INSPECTION APRIL 1981  
HEC 1 DB PRE ANALYSIS DAYS 1579-12

JOB SPECIFICATION									
NO	NBR	WAIN	INAY	INR	IMIN	WETRC	1PRT	1PRT	INSTAN
100	0	30	0	0	0	0	0	0	0
		JOFFR	NAT	LROPT	TRACE				
		5	0	0	0				

MULTI-PLAN ANALYSES TO BE PERFORMED  
MPLAN= 1 NRTIO= 4 LRTIO= 1

RTIOS= 1.00 .75 .50 .25

SUB-AREA RUNOFF COMPUTATION

1 BASIN RUNOFF

ISTAG	ICOMP	IECON	ITAPE	JOLT	JPRT	INAME	ISTAGE	TAUTO
1	0	0	0	0	0	1	0	0

HYDROGRAPH DATA

INTDG	IUNG	TAREA	SNAP	THSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	.16	0.00	.16	0.00	0.000	0	1	0

PRECIP DATA

SPFE	PNS	R5	R12	R24	R48	R72	R96
0.00	22.00	111.00	123.00	132.00	142.00	0.00	0.00

TRSPC COMPUTED BY THE PROGRAM IS .803

LOSS DATA

LROPT	STREP	DLTR	RTIOI	FRATH	STRES	RTIOX	STRII	CNSTL	ALSNX	RTIMP
0	0.00	0.00	1.00	0.00	0.00	1.00	2.00	.10	0.00	.17

UNIT HYDROGRAPH DATA

TP= 1.00 CPT .63 NTA= 0

RECESSION DATA

STRIO= 0.00 TRCSH= .05 RTIOPT= 1.60  
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC= 2.57 AND R= 1.52 INTERVALS

UNIT HYDROGRAPH 10 END-OF-PERIOD ORIGINALS, LAG= 1.01 HOURS, CPT= .63 VOL= 1.00  
18. 52. 60. 33. 19. 10. 5. 2. 1. 1.

END-OF-PERIOD FLOW																
NO. DA	HR. MN	PERIOD	RAIN	EXCS	LOSS	COMP Q	70. DA	HR. MN	PERIOD	RAIN	EXCS	LOSS	COMP 2			
1.01	1.32	1	.00	.00	.00	0.	1.02	1.32	51	.35	.01	.34	1.			
1.01	1.00	2	.00	.00	.00	0.	1.02	2.00	52	.35	.01	.34	2.			
1.01	1.30	3	.00	.00	.00	0.	1.02	2.30	53	.05	.01	.04	2.			
1.01	2.00	4	.00	.00	.00	0.	1.02	3.00	54	.05	.01	.04	2.			
1.01	2.30	5	.00	.00	.00	0.	1.02	3.30	55	.35	.01	.34	2.			
1.01	3.00	6	.00	.00	.00	0.	1.02	4.00	56	.35	.01	.34	2.			
1.01	3.30	7	.00	.00	.00	0.	1.02	4.30	57	.35	.01	.34	2.			
1.01	4.00	8	.00	.00	.00	0.	1.02	5.00	58	.35	.01	.34	2.			
1.01	4.30	9	.00	.00	.00	0.	1.02	5.30	59	.05	.01	.04	2.			
1.01	5.00	10	.00	.00	.00	0.	1.02	6.00	60	.35	.01	.34	2.			
1.01	5.30	11	.00	.00	.00	0.	1.02	6.30	61	.18	.13	.04	4.			
1.01	6.00	12	.00	.00	.00	0.	1.02	7.00	62	.18	.13	.04	11.			
1.01	6.30	13	.01	.00	.01	0.	1.02	7.30	63	.18	.13	.04	18.			
1.01	7.00	14	.01	.00	.01	0.	1.02	8.00	64	.18	.13	.04	23.			
1.01	7.30	15	.01	.00	.01	0.	1.02	8.30	65	.18	.13	.04	25.			
1.01	8.00	16	.01	.00	.01	0.	1.02	9.00	66	.18	.13	.04	27.			
1.01	8.30	17	.01	.00	.01	0.	1.02	9.30	67	.18	.13	.04	27.			
1.01	9.00	18	.01	.00	.01	0.	1.02	10.00	68	.18	.13	.04	27.			
1.01	9.30	19	.01	.00	.01	0.	1.02	10.30	69	.18	.13	.04	28.			
1.01	10.00	20	.01	.00	.01	0.	1.02	11.00	70	.18	.13	.04	28.			
1.01	10.30	21	.01	.00	.01	0.	1.02	11.30	71	.18	.13	.04	28.			
1.01	11.00	22	.01	.00	.01	0.	1.02	12.00	72	.18	.13	.04	28.			
1.01	11.30	23	.01	.00	.01	0.	1.02	12.30	73	.18	.13	.04	47.			
1.01	12.00	24	.01	.00	.01	0.	1.02	13.00	74	.18	.13	.04	84.			
1.01	12.30	25	.01	.00	.01	0.	1.02	13.30	75	.18	.13	.04	135.			
1.01	13.00	26	.01	.00	.01	0.	1.02	14.00	76	.18	.13	.04	175.			
1.01	13.30	27	.01	.00	.01	0.	1.02	14.30	77	.18	.13	.04	238.			
1.01	14.00	28	.01	.00	.01	0.	1.02	15.00	78	.18	.13	.04	238.			
1.01	14.30	29	.01	.00	.01	0.	1.02	15.30	79	.18	.13	.04	269.			
1.01	15.00	30	.01	.00	.01	0.	1.02	16.00	80	.18	.13	.04	368.			
1.01	15.30	31	.01	.00	.01	0.	1.02	16.30	81	.18	.13	.04	522.			
1.01	16.00	32	.01	.00	.01	0.	1.02	17.00	82	.18	.13	.04	545.			
1.01	16.30	33	.01	.00	.01	0.	1.02	17.30	83	.18	.13	.04	638.			
1.01	17.00	34	.01	.00	.01	0.	1.02	18.00	84	.18	.13	.04	638.			
1.01	17.30	35	.01	.00	.01	0.	1.02	18.30	85	.18	.13	.04	638.			
1.01	18.00	36	.01	.00	.01	0.	1.02	19.00	86	.18	.13	.04	638.			
1.01	18.30	37	.01	.00	.01	0.	1.02	19.30	87	.18	.13	.04	638.			
1.01	19.00	38	.01	.00	.01	0.	1.02	20.00	88	.18	.13	.04	638.			
1.01	19.30	39	.01	.00	.01	0.	1.02	20.30	89	.18	.13	.04	638.			
1.01	20.00	40	.01	.00	.01	0.	1.02	21.00	90	.18	.13	.04	638.			
1.01	20.30	41	.01	.00	.01	0.	1.02	21.30	91	.18	.13	.04	638.			
1.01	21.00	42	.01	.00	.01	0.	1.02	22.00	92	.18	.13	.04	638.			
1.01	21.30	43	.01	.00	.01	0.	1.02	22.30	93	.18	.13	.04	638.			
1.01	22.00	44	.01	.00	.01	0.	1.02	23.00	94	.18	.13	.04	638.			
1.01	22.30	45	.01	.00	.01	0.	1.02	23.30	95	.18	.13	.04	638.			
1.01	23.00	46	.01	.00	.01	0.	1.02	24.00	96	.18	.13	.04	638.			
1.01	23.30	47	.01	.00	.01	0.	1.02	25.00	97	.18	.13	.04	638.			
1.02	0.00	48	.01	.00	.01	0.	1.03	1.00	98	.30	.00	.00	19.			
1.02	1.30	49	.05	.01	.04	0.	1.03	1.35	99	.30	.00	.00	17.			
1.02	1.30	50	.05	.01	.04	1.	1.03	2.00	100	.30	.00	.00	16.			
SUM													24.77	21.53	3.45	4354.
													(635.3)	(547.3)	(89.3)	123.26)

SUM 24.77 21.53 3.45 4564.  
( 615.3 ) ( 947.3 ) ( 89.3 ) ( 129.26 )

PFAR 545.  
6-HOUR 335.  
24-HOUR 94.  
72-HOUR 46.  
TOTAL VOLUME 4564.  
129.

Sheet 8 of 20





201.	223.	219.	169.	331.	88.	30.	27.	13.
13.	12.	11.	11.	10.	10.	9.	9.	5.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 4								
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	2.	1.	1.	1.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	3.	5.	6.	7.	7.	7.	7.	7.
7.	13.	21.	34.	44.	52.	60.	67.	92.
130.	136.	109.	85.	65.	44.	25.	14.	5.
6.	6.	5.	5.	5.	5.	5.	4.	4.

HYDROGRAPH AT STA 1 FOR PLAN 1, RTIO 4								
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	1.	2.	1.	1.	1.	1.	1.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.
1.	3.	5.	6.	7.	7.	7.	7.	7.
7.	13.	21.	34.	44.	52.	60.	67.	92.
130.	136.	109.	85.	65.	44.	25.	14.	5.
6.	6.	5.	5.	5.	5.	5.	4.	4.

*****	*****	*****	*****	*****	*****	*****	*****	*****
-------	-------	-------	-------	-------	-------	-------	-------	-------

# 2 ROUTE THROUGH RESERVOIR

STAGE	299.00	300.00	302.00	304.00	305.50
FLOW	0.00	12.50	180.00	816.00	1570.00
CAPACITY	173.	180.	379.		
ELEVATION	299.	300.	310.		

STAGE	299.00	300.00	302.00	304.00	305.50
FLOW	0.00	12.50	180.00	816.00	1570.00
CAPACITY	173.	180.	379.		
ELEVATION	299.	300.	310.		





PEAK OUTFLOW IS 15% AT TIME 42.00 HOURS									
STATION	2	PLAN 1	RATIO 4	END-OF-PERIOD HYDROGRAPH ORDINATES	STATION	2	PLAN 1	RATIO 4	END-OF-PERIOD HYDROGRAPH ORDINATES
0	0	0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40
41	41	41	41	41	41	41	41	41	41
42	42	42	42	42	42	42	42	42	42
43	43	43	43	43	43	43	43	43	43
44	44	44	44	44	44	44	44	44	44
45	45	45	45	45	45	45	45	45	45
46	46	46	46	46	46	46	46	46	46
47	47	47	47	47	47	47	47	47	47
48	48	48	48	48	48	48	48	48	48
49	49	49	49	49	49	49	49	49	49
50	50	50	50	50	50	50	50	50	50
51	51	51	51	51	51	51	51	51	51
52	52	52	52	52	52	52	52	52	52
53	53	53	53	53	53	53	53	53	53
54	54	54	54	54	54	54	54	54	54
55	55	55	55	55	55	55	55	55	55
56	56	56	56	56	56	56	56	56	56
57	57	57	57	57	57	57	57	57	57
58	58	58	58	58	58	58	58	58	58
59	59	59	59	59	59	59	59	59	59
60	60	60	60	60	60	60	60	60	60
61	61	61	61	61	61	61	61	61	61
62	62	62	62	62	62	62	62	62	62
63	63	63	63	63	63	63	63	63	63
64	64	64	64	64	64	64	64	64	64
65	65	65	65	65	65	65	65	65	65
66	66	66	66	66	66	66	66	66	66
67	67	67	67	67	67	67	67	67	67
68	68	68	68	68	68	68	68	68	68
69	69	69	69	69	69	69	69	69	69
70	70	70	70	70	70	70	70	70	70
71	71	71	71	71	71	71	71	71	71
72	72	72	72	72	72	72	72	72	72
73	73	73	73	73	73	73	73	73	73
74	74	74	74	74	74	74	74	74	74
75	75	75	75	75	75	75	75	75	75
76	76	76	76	76	76	76	76	76	76
77	77	77	77	77	77	77	77	77	77
78	78	78	78	78	78	78	78	78	78
79	79	79	79	79	79	79	79	79	79
80	80	80	80	80	80	80	80	80	80
81	81	81	81	81	81	81	81	81	81
82	82	82	82	82	82	82	82	82	82
83	83	83	83	83	83	83	83	83	83
84	84	84	84	84	84	84	84	84	84
85	85	85	85	85	85	85	85	85	85
86	86	86	86	86	86	86	86	86	86
87	87	87	87	87	87	87	87	87	87
88	88	88	88	88	88	88	88	88	88
89	89	89	89	89	89	89	89	89	89
90	90	90	90	90	90	90	90	90	90
91	91	91	91	91	91	91	91	91	91
92	92	92	92	92	92	92	92	92	92
93	93	93	93	93	93	93	93	93	93
94	94	94	94	94	94	94	94	94	94
95	95	95	95	95	95	95	95	95	95
96	96	96	96	96	96	96	96	96	96
97	97	97	97	97	97	97	97	97	97
98	98	98	98	98	98	98	98	98	98
99	99	99	99	99	99	99	99	99	99
100	100	100	100	100	100	100	100	100	100











6

[illegible][illegible]

	PEAK	5-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CBS	75	50	70	10	976
CBS	2	0	0	0	28
INCHES		3.52	4.67	6.73	4.73
W/P		84.25	118.88	123.11	120.11
AC-FT		2	40	40	40
THOUS CU YD		35	49	50	50

MAXIMUM STORAGE = 0.

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2589 2590 2591 2592 2593 2594 2595 2596 2597 2598 2599 2600 2601 2602 2603 2604 2605 2606 2607 2608 2609 2610 2611 2612 2613 2614 2615 2616 2617 2618 2619 2620 2621 2622 2623 2624 2625 2626 2627 2628 2629 2630 2631 2632 2633 2634 2635 2636 2637 2638 2639 2640 2641 2642 2643 2644 2645 2646 2647 2648 2649 2650 2651 2652 2653 2654 2655 2656 2657 2658 2659 2660 2661 2662 2663 2664 2665 2666 2667 2668 2669 2670 2671 2672 2673 2674 2675 2676 2677 2678 2679 2680 2681 2682 2683 2684 2685 2686 2687 2688 2689 2690 2691 2692 2693 2694 2695 2696 2697 2698 2699 2700 2701 2702 2703 2704 2705 2706 2707 2708 2709 2710 2711 2712 2713 2714 2715 2716 2717 2718 2719 2720 2721 2722 2723 2724 2725 2726 2727 2728 2729 2730 2731 2732 2733 2734 2735 2736 2737 2738 2739 2740 2741 2742 2743 2744 2745 2746 2747 2748 2749 2750 2751 2752 2753 2754 2755 2756 2757 2758 2759 2760 2761 2762 2763 2764 2765 2766 2767 2768 2769 2770 2771 2772 2773 2774 2775 2776 2777 2778 2779 2780 2781 2782 2783 2784 2785 2786 2787 2788 2789 2790 2791 2792 2793 2794 2795 2796 2797 2798 2799 2800 2801 2802 2803 2804 2805 2806 2807 2808 2809 2810 2811 2812 2813 2814 2815 2816 2817 2818

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS  
 FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)  
 AREA IN SQUARE MILES (SQUARE KILOMETERS)

OPERATION	STATION	AREA	PLAN	RATIOS APPLIED TO FLOWS			
				RATIO 1	RATIO 2	RATIO 3	RATIO 4
				1.00	.75	.50	.25

HYDROGRAPH AT	1	.16 (.41)	1	545. (15.44)	409. (11.58)	273. (7.72)	136. (3.86)
ROUTED TO	2	.16 (.41)	1	442. (12.53)	298. (8.29)	153. (4.35)	75. (2.11)
ROUTED TO	3	.16 (.41)	1	445. (12.53)	274. (8.52)	153. (4.34)	75. (2.11)

# SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1		INITIAL VALUE		SPILLWAY CREST		TOP OF DAM	
ELEVATION		299.00		299.00		305.50	
STORAGE		173.		173.		282.	
OUTFLOW		0.		0.		1573.	
RATIO OF PMF	MAXIMUM RESERVOIR ELEV.	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION OVER TOP HOURS	TIME OF MAX OUTFLOW HOURS	TIME OF FAILURE HOURS
1.00	302.93	0.00	236.	442.	0.00	41.50	0.00
.75	302.35	0.00	227.	293.	0.00	41.50	0.00
.50	301.53	0.00	213.	153.	0.00	42.00	0.00
.25	300.74	0.00	195.	75.	0.00	42.50	0.00
PLAN 1		STATION 3		MAXIMUM		TIME	
RATIO		FLOW, CFS		STAGE, FT		HOURS	
1.00	443.	266.0	41.50				
.75	294.	267.5	42.00				
.50	153.	266.7	42.00				
.25	75.	266.2	42.50				

REFERENCES

APPENDIX E

## REFERENCES

1. "Summary of the Hydrologic Situation on Long Island, New York, as a Guide to Water-Management Alternatives", U.S. Geological Survey Professional Paper 627-F, 1972
2. "Seasonal Variation of the Probable Maximum Precipitation, East of the 105th Meridian for Areas from 10 to 1,000 Square Miles, and Durations of 6, 12, 24, and 48 Hours", Hydrometeorological Report No. 33 Weather Bureau, U.S. Department of Commerce, April 1956
3. "Flood Hydrograph Package (HEC-1) Users Manual for Dam Safety Investigations", U.S. Army Corps of Engineers, Hydrologic Engineering Center, September 1979
4. "Lower Hudson River Basin Hydrologic Flood Routing Model", for New York District Corps of Engineers, Water Resources Engineers, Inc., January 1977
5. "Standard Project Flood Determination", EM-1110-2-1411, Army Corps of Engineers, Washington, D.C., Rev. 1965
6. "Probable Maximum Precipitation Estimates, United States East of the 105th Meridian", Hydrometeorological Report No. 51, National Weather Service, June 1978
7. "National Program of Inspection of Dams", Vol. 3, Department of the Army, Office of the Chief of Engineers, 1975
8. "Flood Hydrograph Analyses and Computations", EM-1110-2-1405, U.S. Army Corps of Engineers, August 1959
9. "Recommended Guidelines for Safety Inspection of Dams, Department of the Army, Office of the Chief of Engineers Appendix D
10. "Water Resources Data for New York, Vol. 1" U.S. Geological Survey Water-Data Report NY-79-1, 1979
11. "Geologic Map of New York, Lower Hudson Sheet", The University of the State of New York, the State Education Department State Museum and Science Service, Geological Survey, Map and Chart Series No. 5, 1961
12. "The Geology of New York City and Environs", by Christopher Schuberth, The Natural History Press, New York, 1968

OTHER DATA

APPENDIX F

**GREENROCK CORPORATION**

POCANTICO HILLS  
TARRYTOWN, NEW YORK 10591

Area Code 914  
631-4560

February 10, 1981

J. Patel  
Tippetts-Abbett-McCarthy-Stratton  
The Tams Building  
655 Third Avenue  
New York, New York 10017

J. Patel:

In regards to your letter of January 14, 1981 I have copied a set of drawings we had on file for the JDR Lake. In addition to the prints I have enclosed photographs of the subject dam.

The questionnaire is probably not applicable to the Rockefeller Dam, in fact, I found it difficult to answer the questions.

In recent years the lake formed by the dam has become known as Swan Lake.

If I can be of further assistance please do not hesitate to call or write.

Sincerely,



John C. Sundholm  
Vice President of Operations



# DER DAM INSPECTION REPORT

SWAN L/C., NEW YORK

RR CITY YR AP. DAM NO. 214-922 IRS. DATE USE TYPE

## AS PERMIT INSPECTION

☐ Location of Sp'way and outlet ☐ Elevations  
☐ Size of Sp'way and Outlet ☐ Geometry of Non-overflow section

## GENERAL CONDITION OF NON-OVERFLOW SECTION

☐ Settlement ☐ Cracks ☐ Deflections  
☐ Joints ☐ Surface of Concrete ☐ Leakage  
☐ Undermining ☐ Settlement of Embankment ☐ Crest of Dam  
☐ Downstream Slope ☐ Upstream Slope ☐ Toe of Slope  
*BRUSH* *BRUSH*

## GENERAL COND. OF SP'WAY AND OUTLET WORKS

☐ Auxiliary Spillway ☐ Service or Concrete Sp'way ☐ Stilling Basin  
☐ Joints ☐ Surface of Concrete ☐ Spillway Toe  
☐ Mechanical Equipment ☐ Plunge Pool ☐ Drain

☐ Maintenance ☐ Hazard Class  
☐ Evaluation ☐ Inspector

## COMMENTS:

BRIDGE AT OUTLET GAVE

✓  
Dam Permits

L.H.W. 314-923

Town of Mt. Pleasant

Westchester County

September 10th, 1931.

T. F. Farrell, Chief Engineer, - - -  
Division of Engineering,  
Albany, N.Y.

Dear Sir:

As directed in your letter dated September 4th, an inspection was made of the foundations of the dam being constructed for Mr. John D. Rockefeller, Jr., at a point about two miles north of Pocantico Hills Village and about three hundred (300) feet west of the old railroad right of way.

This inspection was made on September 8th in company with Messrs. A.B. Miller, H.G. Test, W.M. Renwick and O. Blake, all of whom are employees of the Walter Kidde Constructors, Inc.

This project has the following characteristics:

Location: - - - -	Quad. 214, Sect. 6, Letter A, No. 22
Maximum Height: - - -	21 feet
Drainage Area: - - -	.04 square miles
Storage Capacity: - - -	Over one million gallons
Type: - - - - -	Concrete core wall with earth embankment on both sides.
Length: - - - - -	Over three hundred feet.
Spillway: - - - - -	Rectangular, twenty-four feet wide, eleven feet high.
Blow-off: - - - - -	24" C.I.P.
Purpose: - - - - -	Recreational
Owner: - - - - -	John D. Rockefeller, Jr.
Date Completed: - - - -	-----
Designed by: - - - -	Walter Kidde Constructors, Inc.
Constructed by: - - - -	Rockefeller Employees.

At the time of our visit, the lowest point to which excavation for core wall had been carried was elevation 275.0 (R.R. datum), whereas the plans called for elevation 271.0. Material at bottom of trench was a quite compact strata of sand containing no gravel but some boulders. Ledge rock had been reached over a forty foot interval on the west end and a twenty foot interval on the east end of the core wall foundation.

Dam Permits  
L.H.W. 214-922  
Town of Mt. Pleasant  
Westchester County

T. F. Farrell, Chief Engineer -2- September 10th, 1931.

One spring has been encountered at approximately the middle of the dam site.

Mr. Miller advised that when the remainder of the foundation had been uncovered at a lower depth and in a more substantial material, he will advise us for the purpose of further inspection.

You will note that this dam is located a few hundred feet north of the head waters of a stream which flows to the south as indicated on U.S.G.S. sheet.

This dam will have a drainage area of only nineteen acres and is located in a swamp which has no springs with appreciable discharge and therefore we believe there will be some difficulty in maintaining the proposed lake of fresh water.

Very truly yours,

J. S. B I X B Y

District Engineer

CAH/BHI

Copy to Co. Asst. Brady and Mr. C.A. Huhne



DEPARTMENT OF PUBLIC WORKS

FRED'K STUART GREENE  
SUPERINTENDENT

THOMAS F. FARRELL  
DISTRICT ENGINEER

Incorporated  
Engineers and Constructors

140 Cedar Street, New York

September 2, 1931

State of New York,  
Dept. of Public Works,  
Div. of Engineering.

Attn. Mr. H.O. Schermerhorn, Asst. Chief Engr.

Re: DAM NO. 214-922 LOWER HUDSON WATERSHED.

Dear Sirs:

Your letter of August 5th requested notification when the foundation of the dam was ready for inspection.

The trench for the core wall is nearly completed and the site of the dam has been cleared and grubbed and loam and top soil removed.

It appears to us that the inspection could now be made any time at your convenience.

If arriving in Tarrytown by train, please call at the Westchester Road Construction Co., 38 White Street, who will locate our Engineer and have him come down with his auto. If arriving by automobile, the nearest point would be at the job office of the new bridge now under construction about a mile north of Pocantico Hills Village on Bedford Road, where the Engineer can be found, or be reached by 'phone.

Yours very truly,

WALTER KIDDE CONSTRUCTORS, INC.

Arthur B. Miller.

## STATE OF NEW YORK



DEPARTMENT OF PUBLIC WORKS  
DIVISION OF ENGINEERING  
ALBANY

Received Aug. 5, 1931Dam No. 244-922Disposition Aug. 5, 1931Watershed Lower Hudson

Foundation inspected \_\_\_\_\_

Structure inspected \_\_\_\_\_

## Application for the Construction or Reconstruction of a Dam

Application is hereby made to the Superintendent of Public Works, Albany, N. Y., in compliance with the provisions of Section 948 of the Conservation Law (see last page of this application) for the approval of specifications and detailed drawings, marked Proposed Dam for Lake on the Estate of Mr. John D. Rockefeller

herewith submitted for the construction of a dam herein described. All provisions of law will be complied with in the erection of the proposed dam. It is intended to complete the work covered by the application about July 1932.

(Date)

1. The dam will be on a brook flowing into ponds & Pocantico River in the town of Mount Pleasant, County of Westchester and 3,000 feet South from the former R.R. Bridge on Old Sleepy Hollow Road  
(Give exact distance and direction from a well-known bridge, dam, village main cross-roads or mouth of a stream)

2. Location of dam is shown on the Tarrytown quadrangle of the United States Geological Survey.

3. The name of the owner is Mr. John D. Rockefeller, Jr.

4. The address of the owner is Pocantico Hills, New York

5. The dam will be used for Pleasure Lake

6. Will any part of the dam be built upon or its pond flood any State lands? No

7. The watershed above the proposed dam is approximately one-third of a square mile.

8. The proposed dam will create a pond area at the spillcrest elevation of seventeen acres and will impound seven million cubic feet of water.

9. The maximum height of the proposed dam above the bed of the stream is 21 feet 0 inches.
10. The lowest part of the natural shore of the pond is five feet vertically above the spillcrest, and everywhere else the shore will be at least fifteen feet above the spillcrest.
11. State if any damage to life or to any buildings, roads or other property could be caused by any possible failure of the proposed dam Old Sleepy Hollow Road and two dwellings
12. The natural material of the bed on which the proposed dam will rest is (clay, sand, gravel, boulders, granite, shale, slate, limestone, etc.) Clay and the abutments on granite
13. Facing down stream, what is the nature of material composing the right bank? Sand, Gravel, Clay and Rock.
14. Facing down stream, what is the nature of the material composing the left bank? Clay and Rock
15. State the character of the bed and the banks in respect to the hardness, perviousness, water bearing, effect of exposure to air and to water, uniformity, etc. Bed is impervious, and banks also.
16. Are there any porous seams or fissures beneath the foundation of the proposed dam? No
17. WASTES. The spillway of the above proposed dam will be 24 feet long in the clear; the waters will be held at the right end by a Masonry Wall the top of which will be five feet above the spillcrest, and have a top width of two feet; and at the left end by a Masonry Wall the top of which will be five feet above the spillcrest, and have a top width of two feet.
18. The spillway is designed to safely discharge 180 cubic feet per second.
19. Pipes, sluice gates, etc., for flood discharge will be provided through the dam as follows:  
Twenty-four inch cast iron draw off pipe leads under the dam, and is controlled by a 24" Cast Iron Gate Valve in a Masonry Gate Tower. A twenty-four inch sluice Gate and a twelve inch sluice Gate admit water to the Gate Tower.
20. What is the maximum height of flash boards which will be used on this dam? None
21. APRON. Below the proposed dam there will be ~~no apron~~ Spillway and channel used  
~~no apron~~ 24 feet wide and twelve inches thick.
22. Does this dam constitute any part of a public water supply? No

## SECTION 948 OF THE CONSERVATION LAW

§ 948. Structures for impounding water; inspection of docks; penalties. No structure for impounding water and no dock, pier, wharf or other structure used as a landing place on waters shall be erected or reconstructed by any public authority or by any private person or corporation without notice to the superintendent of public works, nor shall any such structure be erected, reconstructed or maintained without complying with such conditions as the superintendent of public works may by order prescribe for safeguarding life or property against danger therefrom. No order made by the superintendent of public works shall be deemed to authorize any invasion of any property rights, public or private, by any person in carrying out the requirements of such order. The superintendent of public works shall have power, whenever in his judgment public safety shall so require, to make and serve an order directing any person, corporation, officer or board, constructing, maintaining or using any structure hereinbefore referred to, remove, repair or reconstruct the same within such reasonable time and in such manner as shall be specified in such order, and it shall be the duty of every such person, corporation, officer or board, to obey, observe and comply with such order and with the conditions prescribed by the superintendent of public works for safeguarding life or property against danger therefrom, and every person, corporation, officer or board failing, omitting or neglecting so to do, or who hereafter erects or reconstructs any such structure hereinbefore referred to without submitting to the superintendent of public works and obtaining his approval of plans and specifications for such structures when required so to do by his order or who hereafter fails to remove, erect or to reconstruct the same in accordance with the plans and specifications so approved shall forfeit to the people of this state a sum not to exceed five hundred dollars to be fixed by the court for each and every offense; every violation of any such order shall be a separate and distinct offense, and, in case of a continuing violation, every day's continuance thereof shall be and be deemed to be a separate and distinct offense. This section shall not apply to a dam where the area draining into the pond formed thereby does not exceed one square mile, unless the dam is more than ten feet in height above the natural bed of the stream at any point or unless the quantity of water which the dam impounds exceeds one million gallons; nor to a dock, pier, wharf or other structure under the jurisdiction of the department of docks, if any, in a city of over one hundred and seventy-five thousand population. This section as hereby amended shall not impair the effect of an order heretofore made by the conservation commission or commissioner under this section prior to the taking effect of chapter four hundred and ninety-nine of the laws of nineteen hundred and twenty-one, nor require the approval by the superintendent of public works of plans and specifications theretofore approved by such commission or commissioner under this section.

The foregoing information and accompanying plans and specifications are correct to the best of my knowledge and belief.

..... John D. Rockefeller, Jr., ..... Owner.

By Arthur B. Miller ..... authorized agent of owner.

Address of signer 140 Cedar Street, New York City. Date August 3, 1931.



SPECIFICATIONS  
for  
PROPOSED DAM FOR LAKE  
on the Estate of  
MR. JOHN D. ROCKEFELLER, JR.  
POCAHONTO HILLS, N.Y.  
July 1931.

Walter Kilde Constructors, Inc.,  
140 Cedar Street,  
New York City.



## EXCAVATION

### CLEANING

All brush, grass, roots and swamp musk shall be cleared from the area to be covered by the dam embankments down to clean clay, hard pan or rock and in any event to a depth of not less than two (2) feet.

### CORE WALL

Trench for the core wall shall be excavated in clay or hardpan to a depth of three (3) feet below the surface thereof, or eight (8) feet below the present ground surface. If ledge rock is encountered at less depth all rotten or weathered rock shall be removed and the sound rock shall be thoroughly washed and broomed to receive the concrete. No boulders shall be left within or projecting into the trench.

### MISCELLANEOUS

All other excavation required for the blow-off pipe, spillway or other appurtenances shall be made as shown on the drawings or ordered by the Engineer.

### EMBANKMENTS

Material for making the embankments of the dam shall be obtained from the pond bottom and banks where directed by the Engineer. Material shall be free from all brush, grass and roots and from stones larger than six (6) inches in greatest dimension. If stones of any size are placed in the upstream embankment they shall be carefully separated and not be permitted to lie in nests.

The material forming the dam embankments shall be spread in layers not over eight (8) inches in thickness and each layer shall be thoroughly compacted by tamping or trucking over the loose material. Against the core wall or other walls and in places where the embankments can not be compacted by trucking, they shall be thoroughly tamped with heavy hand tampers.

If ordered by the Engineer each layer of embankment shall be sprinkled with water to insure proper consolidation.

No frozen material will be permitted in embankments or back fill.

AD-A105 818

TIPPETTS-ABBETT-MCCARTHY-STRATTON NEW YORK

F/G 13/13

NATIONAL DAM SAFETY PROGRAM. JOHN D. ROCKEFELLER JR. DAM (INVEN--ETC(U)

AUG 81 E O'BRIEN

DACWS1-81-C-0008

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UNCLASSIFIED

2 of 2



					END
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### SEEDING.

Upon completion of the downstream embankment and the top of the dam these surfaces shall be well raked and seeded in rye and then be sprinkled. If a good stand of rye is not obtained by the first seeding it shall be repeated.

### CONCRETE.

#### PROPORTIONS.

All reinforced concrete shall be mixed in the proportions of one part by volume of cement to two parts of sand to four parts of broken stone.

All plain concrete shall be mixed in the proportions of one part by volume of cement to two and one-half parts of sand to five parts of broken stone.

In plain concrete structures more than one (1) foot in thickness, one row stones or pieces may be embedded. Each piece shall be well washed, and pushed into place and no piece shall be nearer than two (2) inches to a form.

#### MIXING.

All concrete shall be mixed in a power driven batch mixer satisfactory to the Engineer and the mixing of each batch shall be sufficient to produce a uniform plastic mass with no segregation of the ingredients.

#### WATER.

Only so much water shall be used as will give a plastic workable concrete neither "wet" nor "dry". All water shall be provided by the contractor at his own expense.

#### PLACING.

Concrete shall be carried from the mixer to the forms and placed in the forms in such manner that there will be no separation of the ingredients.

#### TAMPING.

As concrete is placed in the forms it shall be thoroughly tamped and spaded against the forms so as to avoid stone pockets and to produce a surface on the concrete which will require no finishing.

#### FORMS.

All forms shall be made from clean new dressed lumber either chip lap or tongue and groove. Forms shall be empty strong to maintain line and grade during the placing and tamping of the concrete and shall be built truly to the shapes and dimensions shown on the drawings. Forms shall be thoroughly water-tight and satisfactory to the Engineer.

#### REMOVAL OF FORMS.

Forms shall not be removed from any portion of the work until permitted by the Engineer.

#### REINFORCING.

Steel reinforcing bars of the size and spacing shown on the drawings shall be fastened securely to their proper position in the forms. Where applied, bars shall overlap fifty (50) diameters and shall be securely wired. All intersecting bars shall be securely wired together.

#### CONSTRUCTION JOINTS.

Construction joints having the detail shown on the drawings shall be placed so that the section of work between the joints can be poured at one continuous operation. All concrete shall be monolithic between construction joints.

#### RIE RAP AND PAVING.

##### RIE RAP.

Upon the upstream slope of the dam embankment stone rip rap shall be placed by hand to line and grade. Stones for rip rap shall be the size of a man's head and shall be chinked with smaller stone.

##### PAVING.

The spillway paving shall be laid by hand of stones similar to those used for rip rap. After paving is laid it shall be thoroughly grouted by pouring an grout of equal parts of cement and sand mixed with water to the consistency of cream and well broomed in.

#### PIPE BLOW OFF.

##### PIPE.

The contractor shall furnish and lay cast iron pipe blow-off as shown on the drawings. Joints shall be poured from molten lead and thoroughly caulked. Lead in the finished joints shall have a depth of at least two (2) inches. Second hand pipe may be used if approved by the Engineer.

##### VALVE.

The Contractor shall furnish and set a gate valve in the blow-off pipe where it passes through the gate tower. This valve shall be a twentyfour inch flanged and iron body bronze mounted double disk water works gate valve, with four (4) inch bypass valve, with hand wheels, and shall be a Jones & Lamson Valve Company Standard weight gate valve or equal and satisfactory to the Engineer.

#### SLUICE GATES.

The Contractor shall furnish and set the cast iron sluice gates shown in the gate tower. These sluice gates shall be "Chippewa" or approved make, and brances mounted throughout. The joint between the frame of the sluice gates and the masonry wall shall be made with copalut saturated packing used as a gasket.

#### MUNHOLE COVER.

The Contractor shall furnish and set a steel plate cover for the munhole. This cover shall be provided with hinges, keep and lock and shall be painted with two coats of red lead and oil. Hinges and keep shall be neatly and securely fastened to the concrete of the munhole.

#### LADDER STEPS.

The Contractor shall furnish and set wrought iron ladder steps in the gate tower as shown on the drawings.

#### BRIDGE.

Bridge from the dam to the Gate Tower shall be made with two (2) 12" I beams with bolts and pipe separators, and shall be floored with 2" rough oak planks, and fastened with 2" track spikes driven from underneath to clip the inside flanges of the beams. Siding shall be of wood as per details, the wood posts being bolted through the web of the I beam.

#### ALUMINUM - SHEET PILING.

If order by the Engineer, the Contractor shall furnish material and drive a steel sheet pile cut-off wall beneath the core wall. Piling shall have 3/8 inch web and shall weigh not less than 33 pounds per square foot of wall. Price for this work will be agreed upon when work is ordered and will be in addition to the lump sum bid.

#### MATERIALS

##### CEMENT.

Cement shall be a standard brand of Portland cement and shall meet the requirements of the Standard Specifications and Tests for Portland Cement of the American Society for Testing Materials, Serial Designation C-9-26 and any subsequent revisions thereof.

##### SAND.

Sand for concrete shall be coarse, clean and sharp and shall contain no vegetable matter and not over three (3) percent of clay or loam.

**BRICKEN STONE.**

Bricken stone for concrete shall be sound trap rock free from shale, limestone or grit. It shall be of size such that it will be passed by a two (2) inch screen but retained on a one (1) inch screen.

**WATER.**

Water for concrete and grout shall be clean and free from oil, acid, clay or other deleterious matter.

**CAST IRON PIPE.**

Cast iron pipe shall be Class B hub and spigot and flange and spigot pipe in accordance with the American Water Works Association Specifications.

**REINFORCING STEEL.**

All steel reinforcing bars shall be square deformed or square twisted bars meeting all the requirements of the Standard Specifications and Tests of the American Society for Testing Materials, Serial Designation A-15-14 and any subsequent revisions thereof.

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